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A Cross-Cultural Study of the Paradoxes of Mobile Technology in the Mobile Technology Industry

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Abstract

The purpose of this study is to explore the theory of mobile technology paradoxes in a cross-cultural context, by examining relationships between cultural dimensions, perceived mobile technology paradoxes, the enacted coping strategies and consumer loyalty.

A two-stage study is designed. Focus groups are used to explore and validate mobile technology paradoxes in the UK and Taiwan, and a self-administered Web-based questionnaire is conducted in the two countries. The data from the questionnaire are analysed by using structure equation modelling.

The present research validates the research model relating to cultural dimensions, technology paradoxes, coping strategies and consumer loyalty in the UK and Taiwan. In both the UK and Taiwan, the perceived Competence/Incompetence paradox (CMP), coping strategies (CS) and consumer loyalty (CL) are related. The UK has two unique relationships: between the perceived Empowerment/Enslavement paradox (EMP) and CL; and between the perceived Dependence/Independence paradox (DEP), CS and CL. Taiwan has five unique relationships, which are the impact of the Individualism/Collectivism (IDV) on the perceived Illusion/Disillusion paradox (ILP), which in turn has an impact on CL; the impact of uncertainty avoidance (UAI) on the perceived EMP; the impact of UAI on the perceived CMP; the mediating effect of CS on the relationship between the perceived CMP and CL; and finally, the impact of the perceived DEP on CL.

The perceived CMP, linked to perceived efficiency and effectiveness, is the theme that most closely relates to CL in the mobile technology industry. Marketers in the UK and Taiwan should focus on developing features and applications that enable efficient and effective lifestyles for consumers. Marketing communication strategies should focus on explicitly demonstrating potential improvements in lifestyle. The perceived dependence, despite its negative attribute, also has a positive impact on consumer loyalty in both countries. Taiwanese consumers have significantly higher perceived

dependence than their UK counterparts, and it cannot be explained by cultural dimensions. Further research is required on this aspect.

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List of Abbreviations

Abbreviation	Meaning
AL	Attitudinal Loyalty
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CM	Perceived Competence
CMP	Perceived Competence/Incompetence Paradox
CN	Perceived Create Needs
CR	Composite Reliability
CS	Coping Strategy
CV	Convergent Validity
CVS	Cultural Value Scale
CVSCALE	Donthu and Yoo's (1998) Cultural Value Scale
DE	Perceived Dependence
DENG	Perceived Disengaging
DEP	Perceived Dependence/Independence Paradox
DIL	Perceived Disillusion
DV	Discriminant Validity
DVI	Direct Value Inference
EM	Perceived Empowerment
EMP	Perceived Empowerment/Enslavement Paradox
EN	Perceived Enslavement
ENG	Perceived Engaging
EFA	Exploratory Factor Analysis
FN	Perceived Fulfil needs
FTF	Face-to-Face
GFI	Goodness-of-Fit Index
GLOBE	Global Leadership and Organizational Behaviour Effectiveness
HCI	Human-Computer Interaction
HC	High Context
ICOM	Perceived Incompetence
IDE	Perceived Independence
IMP	Perceived Improvisation
ILP	Perceived Illusion/Disillusion Paradox
IVI	Indirect Value Inference

IVR	Indulgence vs. Restraint
KMO	Kaiser-Meyer-Olkin
LC	Low Context culture/society
MGCFA	Multi-Group Confirmatory Factor Analysis
MI	Modification Indices
MLE	Maximum Likelihood Estimation
MSA	Measure of Sampling Adequacy
MTMM	Multitrait-Multimethod Matrix
PCA	Principal Component Analysis
PL	Perceived Planning
PR	Perceived Private
PU	Perceived Public
PX	Paradox Items
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modelling
SIC	Squared Inter-construct Correlations
TP	Technology Paradox
UREC	University Research Ethics Committee
VSM	Value Survey Module

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Chapter 1.

Introduction

1.1 Research Background

The mobile technology industry, consisting of mobile device manufacturers, network providers, and application (app) developers/providers, has experienced continuous growth in the last decade. Mobile phones, particularly, are the main mobile devices linking all the possible mobile technology peripheries together, and are probably the only mobile device people carry with them all the time. In 2012, the global mobile phone penetration rate is nearly five times greater than 2002 (ITU, 2013), and the number of subscriptions in several countries is higher than their country populations, such as Taiwan and the UK (CIA, 2013).

The statistics from the International Telecommunication Union (ITU) depict two phenomena: the prevalence of the usage of mobile phones, and a continuous demand for mobile phones in the market. The first phenomenon drives the growth of the mobile marketing, which enables the building and fostering of customer relationships, and causes huge revenue to be generated, based on mobile advertising (Varnali and Toker, 2010). In addition, marketers in this industry have predicted that mobile devices enabled by mobile technology will become the standard tool for e-commerce (online) transactions (Jiang, 2009). The second phenomenon drives the continuous development of more advanced mobile technologies, allowing the businesses to take a competitive stance. At the same time, consumers' demand for mobility also contributes to the development which makes consumers'

communication ubiquitous. As a result, devices enabled by mobile technology not only act as a product in huge consumer demand, they also act as a tool that channels potential opportunities for businesses. Some scholars assert that successful strategies for the mobile technology marketplace should be based on the understanding of the factors that affect the intention of consumers either to adopt the use of mobile internet (Jiang, 2009; Wang *et al.*, 2006) or accept the concept of mobile marketing (Parreño *et al.*, 2013). However, knowing about consumers' behaviour in adopting or accepting certain functions of mobile phones, or marketing strategies enabled by mobile phones, can only provide limited information in trying to understand consumers' perceptions towards the use of mobile phones. There is limited attention with regard to how users of mobile phones perceive their usage experience, and the subsequent effect on intentions to continue using the technology. There is scarce knowledge, too, about any cross-cultural context, which could provide some insight into whether standardised or adaptive marketing strategies in the mobile technology industry should be employed in the global markets. Vrontis et al. (2009) suggest that it is irrational to use standardised global marketing strategies in international markets. Understanding consumers from different countries and cultures is crucial to global marketers, and such understanding determines the success of marketing strategies.

Accordingly, the consumer's experience in the use of mobile phones is sought out, and two major studies have shed some light on this issue. Mick and Fournier (1998) outline the contradictory impact of technology usage on people's behaviour. Jarvenpaa and Lang (2005) extend their research and identify eight technology paradoxes when using mobile phones. For example, mobile technology enables consumers to connect to others 24/7, which creates a sense of empowerment. However, it is also expected that consumers can be reached 24/7, which prevents

them from creating and maintaining distance from others. This forces consumers to interact with other people through mobile devices, which creates a sense of enslavement. By understanding the paradoxical impact of mobile technology usage – with both benefits and consequences − Jarvenpaa and Lang (2005) provide a sound base for revealing the different experiences that consumers encounter. Both Mick and Fournier (1998) and Jarvenpaa and Lang (2005) also investigate the consumer's coping behaviour of these paradoxes, but the connection between perceived paradoxes of technology and coping behaviour has not yet been tested.

According to the gaps identified above, the present research aims to extend the work on paradoxes of technology undertaken by both Mick and Fournier (1998) and Jarvenpaa and Lang (2005), into a cross-cultural context. It seeks to understand the relationships between the cultural dimensions and perceptions of technology paradoxes, and between the perceived paradoxes, coping behaviour and consumer loyalty. This investigation is crucial because despite the widespread introduction of new mobile technology devices and services, research on technology adoption is limited and largely based on two dimensions: perceived usefulness and perceived ease of use (Davis, 1989). When consumers experience technology paradoxes, they feel frustrated, challenged, annoyed and irritated (Chae and Yeum, 2010). Therefore, if the users have a negative experience with mobile technology, it is very likely that they may not necessarily stop using it, but may reduce the usage, hence a decrease in demand. Accordingly, the present research investigates whether the concept of mobile technology paradoxes is the foundation of affecting consumers' mobile technology usage and whether this relationship varies across cultures. Moreover, whilst the extant studies on technology paradoxes are heavily dependent on qualitative findings, this study follows a quantitative approach.

The present research is applied in two countries, the UK and Taiwan, for a further investigation on the concept of technology paradoxes. The study of Nickerson et al. (2008) which investigates the paradoxical impact of mobile phones in public places, such as restaurants and theatres, is the only extant study in a cross cultural context (specifically France, Italy, USA, Finland and Turkey). The UK and Taiwan have distinct cultural backgrounds. In particular, Taiwan has relatively high power distance and uncertainty avoidance, but lower individualism and lower masculinity compared to the UK (Hofstede, 1991; Hofstede, 2001; Hoftstede, 1980). Also, according to Hall (1976) Taiwan is categorised as a high context culture, the UK is categorised as a low context culture. From such studies, the UK and Taiwan possess distinct cultural characteristics, and that is a key point of departure for cross-cultural research (Adler, 1983).

1.2 Research Aim and Objectives

The aim of the study is to explore the influence of culture on the consumer's experience with the paradoxes of mobile technology, and to understand whether consumer experience based on different cultures also has an influence on consumer loyalty. Accordingly, the present research, adopting a quantitative approach, analyses how consumers of two different cultures perceive and cope with the paradoxes of mobile technology, and their on-going relationships with this technology, in accordance with defined cultural dimensions.

The following are the objectives of the study:

1. To identify the cultural dimensions that may influence the consumer experience of mobile technology use.
2. To investigate UK and Taiwan's cultural dimensions based on a seminal theory from the literature.

3. To produce a model for mapping the relationships between cultural dimensions, perceived paradoxes of mobile technology, coping strategies employed and consumer loyalty in the mobile technology industry.

3.1 To produce a measurement for testing paradoxes of mobile technology and coping strategies.

3.2 To analyse the relationship between cultural dimensions and the experience with the paradoxes of mobile technology, coping strategies and attitudinal loyalty in those two countries.

4. To evaluate the findings on cultural influence on consumer behaviour in technology, making a theoretical contribution to cultural studies and consumer behaviour, and a practical contribution to practitioners in mobile technology industry.

1.3 Contribution of the Research

The present research makes a few contributions by examining the impact of culture on the perceptions of paradoxes of mobile technology, and their subsequent effect on consumer loyalty to mobile technology in a cross-cultural context. These bring out three contributions to marketing theory and four implications to the mobile technology industry.

The first theoretical contribution is to develop a scale for measuring paradoxes of mobile technology, and a scale for the coping strategies enacted by the paradoxical feelings. The scales are developed following Churchill's (1979) procedures, and

Q-methodology (McKeown and Thomas, 1988) is employed to ensure the face validity of each construct without recourse to statistical analysis.

The second contribution to the theory is the new application of Cultural Value Scale (CVSCALE) (Donthu and Yoo, 1998) to a new country (Taiwan), as Yoo et al. (2011) suggest, validating CVSCALE to larger and diverse demographically samples. CVSCALE is a scale by which Hofstede's cultural dimensions can be tested at an individual level, and has shown its popularity since it was established. The present research also makes a contribution to validating this scale in the UK consumer sample as opposed to the student sample conducted by Soares (2005).

The third contribution is the testing of culture's influence on consumer experience with technology paradoxes, the relationship between the experience and consumer loyalty, and the role of coping strategies in this relationship in a cross-cultural context. Although some relevant studies relating to the relationships between cultures, post-adoption beliefs and consumer loyalty were conducted (e.g. Lee *et al.,* 2007), the present research is the first one to adopt Hofstede's six cultural dimensions to represent cultural characteristics and test it at an individual level.

Three managerial implications to the mobile technology industry are concluded in the present research.

The first managerial implication relates to the global mobile phone markets. The present research confirms culture's impact on perceived paradoxes. After that, cultures indirectly influence coping strategies and consumer loyalty. Accordingly, identifying the target audiences/countries' cultural dimensions can help to decide whether standardised or adaptive marketing strategies should be employed.

The second and the third managerial implications are to the UK and Taiwan mobile phone markets respectively. Culture's influence on perceived paradoxes, and the relationships between perceived paradoxes, coping strategies and consumer loyalty are respectively identified in the British and Taiwan samples. The unique relationships in both markets provide useful suggestions to British and Taiwanese mobile technology marketers, as well as to the global marketers who can decide what marketing strategies should be employed if they are interested in these two markets, and/or the markets which have similar cultural dimensions with these two countries.

1.4 Structure of the Study

This thesis consists of eight chapters including the introduction chapter. The overall structure is organised as follows.

Chapter 2 reviews the extant literature in consumers' experience in the use of technology products and its relationship with consumer loyalty. The underpinning theory, which is the paradoxes of mobile technology, and research relating to it are discussed. It continues with a review in coping strategies, and concludes with a discussion of consumer loyalty and its role in the present research.

Chapter 3 depicts why and how cross-cultural consumer behaviour research is conducted. This chapter begins by addressing the demand in consumer insights cross-culturally, then delineating the operationalisation of culture. Approaches to studying cross-cultural research are illustrated and evaluated. A review of the mainstream dimensions of culture employed for cross-cultural research is provided. The chapter concludes by addressing and evaluating different assessments of culture.

Chapter 4 delineates the research methodology. It starts by depicting special methodological considerations for cross-cultural research, and then presents the research process. The aim and objectives are addressed, followed by the researcher's underpinning philosophy, which influences the design of the present research. The research design, which includes the choice of research strategy, time horizon, sampling techniques and research methods, is delineated.

Chapter 5 describes the development of the research model and hypotheses. The research model is presented and explained by a list of discussions between variables, which form the hypotheses. A total of 40 hypotheses are composed. The conceptualisation and operationalisation of the paradoxes of mobile technology and coping strategies as the foundation of questionnaire development are delineated.

Chapter 6 describes the development of the quantitative data collection instrument and the deployment of data collection. It begins by delineating the purpose and the procedure of focus groups conducted in both the UK and Taiwan, followed by the development of the questionnaire items for the perceived paradoxes and coping strategies. Adoption and adaption of existing scales for measuring cultural dimensions and consumer loyalty are delineated too. The chapter concludes by providing the data collection methods and procedures in both the UK and Taiwan.

Chapter 7 presents the results of the data analysis based on the data collected by the questionnaire, and the research findings based on the revised hypotheses. The chapter begins by presenting the demographic data followed by the procedure of data screening. The research model is revised based on the results of measurement model specification. The revised model and hypotheses are assessed by the

structural model, and the research findings are presented. Measurement invariance is assessed and demonstrated by conducting multi-group confirmatory factor analysis (MGCFA).

Chapter 8 discusses the research findings, contribution to knowledge and businesses, limitations and recommendations for future research. It starts by discussing the relationships between the research variables in the UK and Taiwan, and comparisons are made to conclude the similarities and differences. Contributions to marketing theory and implications for the industry are pointed out. Lastly, limitations based on different stages of the research are addressed, and recommendations for future research are highlighted.

Chapter 2.

Consumer Paradoxical Experience with the Use of Technology and Consumer Loyalty

2.1 Introduction

The purpose of this chapter is to review and evaluate the extant literature on consumer experience, particularly in the use of technology products.

The chapter is divided into four parts. The first part discusses the consumer experience in the extant literature, and develops a rationale for the present research. The second part focuses on consumer experience in the use of technology as the target realm of the study, followed by the third part which delineates the range of coping behaviour/strategies enacted by consumers in the use of technology. Finally, the fourth part discusses consumer loyalty in relation to consumer behaviour.

2.2 Consumer Experience

Consumer experience is an ambiguous term in marketing research, as it can be applied to different contexts – from having an experience in the use of a product, to purchasing an experience e.g. going to a theatre. Therefore, it is essential to begin by distinguishing how consumer experience is understood in the present research as opposed to other meanings which arise in the extant literature.

The term ‘Consumer Experience’ has been widely used in different disciplines, and it is considered to be in general a potentially important construct (Palmer, 2010), as it

refers to consumer's perceptions, thoughts, feelings and opinions towards certain products. The experience can be said to begin from the moment that consumers start their search for a product, to the final consumption of that product (Brakus *et al.*, 2009). These authors distinguish three different types of experience within the process of searching for a product, shopping for it, or conducting a purchase, and consuming the product. They identify these three stages as product experience (interaction with the product), shopping and service experience (interaction with sellers/the buying or purchasing platform/interface) and consumption experience (using or consuming the product) (Brakus *et al.,* 2009). They also argue that these experiences occur both directly and indirectly when consumers are within the process. Although all these experiences are undergone by consumers, how to define them is viewed from different perspectives in the extant literature. Thus, in order to identify appropriately the consumer experience as related to the present research, a discussion of the extant literature related to consumer experience is offered below.

2.2.1 Experience in Different Syntax

A way to distinguish different experience is suggested by Palmer (2010), who points out that the term can be used as a noun and as a verb. By arguing the confusion raised from the different meanings in terms of different syntaxes, Palmer (2010) states that as a verb the word 'experience' is a process leading to a learnt outcome. However, as a noun it is about novelty and *"lack of predictable behaviour and learnt response*'' (Palmer, 2010, p. 197).

By offering such a wide variety of actions/ perceptions based on the single undefined word – 'experience', it is not difficult to see the ambiguity which marketers have to face in conveying a specific meaning, as it can convey any number of actions or perceptions. For example, on the one hand, experience as a process leading to a

learnt outcome (as a verb) indicates that it may be a predictable behaviour, and as such, provides valuable information for marketing research. This is similar to the utilitarian view of experience (Abbott, 1955), emphasising learnt responses and predictable outcomes. Abbott (1955) surmised that consumers want a product in order to fulfil learnt outcomes i.e. the wanting arises from the knowledge of what a product can offer. Therefore, from a utilitarian point of view, experience provides functional values. On the other hand, if experience is considered as something new, then this implies an absence of predictable behaviour or learnt responses (as a noun). From this viewpoint, experience serves as a drive to the new, entailing a desired absence of predictable behaviour that implies a hedonistic perspective from which to look for a product. This hedonistic view of experience considers experience should be something to provide behavioural, emotional and relational values (Schmitt, 1999), and to produce attitudinal outcomes (Oliver *et al.*, 1997). Palmer (2010) argues that current research has tended to move away from Abbott's utilitarian position on experience, and that a hedonistic position on experience has become mainstream. It is interesting to note however, that other researchers such as Brakus et al. (2009) differ from Palmer's position. This will be discussed later below.

After discussing experience in two different syntaxes, a different view of seeing experience is to follow.

2.2.2 Experience Based on Interaction

Forlizzi and Ford (2000) study in user-product interaction, and conclude that there are three ways to talk about experience: experience in general, an experience in particular, and experience as story. In a later study, Forlizzi and Battarbee (2004) slightly modify the 'experience as story'' to ''co-experience'', but stay with a similar view on the three types of experience, which can be found listed in Table 2.1 below.

Table 2.1 Types of Experience

Source: Forlizzi and Battarbee (2004, p. 263)

Before discussing the table above, it is worth mentioning that both Forlizzi and Ford (2000) and Forlizzi and Battarbee (2004) discuss these three types of experience from a general viewpoint, rather than restricting them as only applicable to their human-computer interaction (HCI) research context. Although HCI is its main focus, their treatment of experience makes it possible to go beyond their application to product design in an HCI context, and to harness their conclusions to illuminate other research fields and contexts.

Forlizzi and Battarbee (2004) recommend three types of experience based on the 'interaction' between users, or experiencers (called 'users' thereafter) and products. But they also consider the interaction between users and other users in respect of the same products, hence their creation of the third category of experience – co-experience. If these categories are applied to Palmer's (2010) conclusions mentioned earlier, then general experience could be seen to focus more on the process leading to a learnt outcome, and an experience and co-experience are

unique events that are lack of predictable behaviour. Table 2.2 shows the summary which combines Table 2.1 as below

Table 2.2 Types of Experience Combined with Characteristics of Experiences

Source: Palmer (2010); Forlizzi and Battarbee (2004, p. 263)

From Table 2.2, it can be seen that the descriptions and examples from experience fit into the 'verb' definition. Forlizzi and Battarbee's (2004) '*constant stream of 'self-talk' that happens when we interact with products*' (experience) (p. 263) represents the forming of experience through the process of interacting with products. This is what Abbott (1955) thinks of experiences, of which are attained through activities that provide satisfying experience of using products. As stated before, through these experiences, consumers expect what they should have (experience) from a product, which is based on the utilitarian view.

An experience ‘‘*..has a beginning and end.. inspires behavioural and emotional change”* (Forlozzi and Battarbee, 2004, p. 263) focusses on the experience in a set period of time (e.g. watching a movie); the co-experience, described as ‘*’creating meaning and emotion together through product use*’’ (p. 263) represents a similar meaning but, in addition to this, adds other users’ involvement. These two types of experience can be referred to taking a hedonistic view (Schmitt, 1999), which ‘*’emphasises novelty and lack of predictable learnt response”* (Palmer, 2010, p. 197). Therefore, an experience and co-experience would be something new which predictable responses are not sought, which fits into the ‘noun’ definition.

From the examples listed in Table 2.2 (p. 14), it can be seen that these examples contain active and passive activities based on the interaction between users and objects (and others). It can be seen that ‘experience’ contains active interaction. It means that consumers know what the products are like, so they know how to use them or/ interact with them. In contrast, ‘an experience’ contains passive interaction, because consumers have no knowledge about it, and they may only be able to passively receive what the experience offers to them. Co-experience, however, contains both active and passive interaction. For example, playing a mobile messaging game with friends requires an active interaction (known knowledge of the game and experience of playing it before) and passive interaction (responses may be based on what is not known/learnt before). Accordingly co-experience, categorised as a noun with an experience, contains both active and passive interaction, which is different from an experience. However, both co-experience and an experience can be grouped into the hedonistic view of experience, based on Pine and Gilmore (1998).

Pine and Gilmore (1998), distinguish experiences by the interaction between users and products. These authors choose to use the term ‘participation’ – that is, *the action*

of taking part in something, instead of 'interaction', that is, *reciprocal action or influence* (OUP, 2009). In their work, participation can be regarded as both active and passive interaction under the hedonistic view.

From the discussion above, and as seen in Table 2.2 (p. 14), experience based on the view of different syntaxes and interaction, based on Palmer's (2010) dichotomy of experience, can be integrated. The present research focusses on the characteristics of experience, and discusses these different experiences as featuring in the extant literature. This is laid out below.

2.2.3 Experience as Learnt Outcome

As discussed earlier, learnt outcomes relate more to the utilitarian view of experience, that is, people's experience with the attributes of a product, or what they learn from interacting with a product. Learnt outcomes are the result of a consumer's evaluation of products/services, which play an important role in the consumer's decision making process (Schiffman and Kanuk, 2000). Two important processes are involved in consumer decision making; these are first the pre-purchase/-use/-adoption stage, and second, the post-purchase/-use/-adoption stage. The former experience stems from pre-purchase search and evaluation of different alternatives; the latter experience comes from post-purchase evaluation (Schiffman and Kanuk, 2000). Brakus et al. (2009) have a similar view in terms of consumer experience. They state that consumer experience starts from the search for a product, shopping to find it, and then consuming it. Though these authors do not include post-purchase experience, they consider consumers' interactions with intangible products (e.g. the policies and personnel of a store where they receive the products) as part of the experience. This brings a broader conceptual dimension to the consumer experience, in that this view

transforms products (functions) into values; which is similar to the position of Abbott (1955).

Considering learnt outcomes from a broader view of consumer experience is unquestionably important because such outcomes would influence a consumer's repeat purchase decision, and furthermore, might influence other consumers' decisions via different channels e.g. word of mouth (Schiffman and Kanuk, 2007).

2.2.4 Experience as Novelty

By definition, experience as novelty means that predictable behaviours and responses are not desired. This appears to be in contrast to the concept of 'learnt outcomes' viewed from the utilitarian perspective. It also suggests that learnt outcomes (based on past experience) have little value in trying to explain or predict consumers' responses when an experience is emphasised as a unique event (Palmer, 2010). Uniqueness in an experience is also stressed by Dewey (1963), and Pine and Gilmore (1998), indicating that the concept of experience as novelty has been addressed in the extant literature for at least five decades. As novelty, an experience mostly focusses on the activities that *"a customer finds unique, memorable and sustainable over time*'' (Pine and Gilmore, 1998, p.12). Under their definition, Pine and Gilmore suggest that experiences will be a value-creating element for organisations, as a type of desirable products, or even as a mental process. This view differs from an earlier stage of economic development which was mainly associated with fulfilling needs (Darmer and Sundbo, 2008).

Experience as novelty is considered to be a study focussing on the hedonistic properties of products, which is, again, different from the utilitarian view of experience which focusses on product attributes (Palmer, 2010). Although Palmer (2010) claims

that the research in the field has drifted from the utilitarian view of experience to the hedonistic view, Brakus et al. (2009) state that most of the research on experience still focusses on utilitarian product attributes. The two studies of Palmer (2010) and Brakus et al. (2009) suggest that these two types of experience are probably equally distributed in the extant research, indicating that both are equally important.

After distinguishing experience as a learnt outcome and novelty, now it is not difficult to point out which is the appropriate focus for the present research. As the present research aims to understand consumers' experience in the use of mobile technology (through the use of the product), the position taken on defining experience falls into the domain of learnt outcomes, that is, taking a utilitarian view of the issue, as pointed out in Table 2.2 (p. 14). Consumers who have been using mobile technology possess the post-purchase/-adoption experience, meaning that they will tend to produce a constant stream of 'self-talk' that happens when they interact with the mobile technology products or with others who also interact with the products.

However, before talking about the specific consumer experience of using mobile technology, the reasons of choosing a technology product for the present research is elaborated next.

2.3 The Studies of Technological Innovations

In the context of consumer behaviour, Sheth et al. (1999) define technology as ''*the dimension of market context that consists of the applications of new technology for development, distribution and consumption of products and services that increase the quality of life for all customers''* (p.132-133). It is indeed incontrovertible that continuous developments in new technologies have changed people's lives and the ways in which people conduct their daily tasks – from doing the laundry (the invention

of washing machines) to banking (the inventions of the Internet and mobile technologies – online and mobile banking). With the help of such innovations, people have gained a great deal of flexibility, both temporal and spatial, which has enabled them to access free time and a range of activities where were unavailable to them before (Mick and Fournier, 1998).

Since the introduction of technological innovations to people's everyday life, people's interactions with such technological innovations (products/services) have been widely investigated. Understanding consumers' behaviour towards these products/services not only helps to enrich academic knowledge, but also helps practitioners understand better the process and diffusion of these innovations (Peters and Allouch, 2005), so that manufacturers can provide competitive products/services to increase customer satisfaction and retention (Lee and Allaway, 2002). Above all, the change of consumer behaviour due to technological innovations also means a significant change to the market (Sheth *et al.*, 1999).

In the past few decades, the vast majority of studies in technological innovations have focussed on analysing antecedents that influence consumers' behaviour in adopting/accepting certain products. Major theories such as the Innovation Diffusion Theory (IDT) by Rogers (1983, 2003) and the Technology Acceptance Model (TAM) (Davis, 1989; Davis *et al.*, 1989) have postulated that by examining product attributes and consumer backgrounds, consumers' acceptance and adoption behaviour for certain innovations/technologies could be better understood and explained.

Notably, Rogers' (1983, 2003) IDT was built under the assumption that everyone should, sooner or later, adopt innovations because they are simply good (Rogers, 1983; Rogers, 2003). Innovative products contain improvements over the existing

ones (Ram, 1987). Most of the research following this notion has been conducted under the same premise, and investigates cases which demonstrate successful adoption. Product attributes investigated by Rogers (1983, 2003) are: relative advantage, compatibility, complexity, trialability and observability. The function of this model is to demonstrate the relationships between the attributes of technology products and the characteristics of consumers at different adoption stages (named innovators, early adopters, early majority, late majority and laggards). Davis' (1989) TAM provides a parsimony model to explain and predict user adoption through product attributes (perceived ease of use and perceived usefulness). The extended TAM models developed based on TAM in the last decade (e.g. TAM 2 by Venkatesh and Davis, 2000; TAM 3 by Vankatesh and Bala, 2008 in organisational contexts; Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al., 2003; and c-TAM by Bruner and Kumar, 2005) prove that understanding and predicting users' adoption behaviour has been a main focus in the past two decades and still is today.

Due to the prevalence of IDT and TAM research, a very limited body of research was focussed on the post-adoption experience of technology products until the study conducted by Mick and Fournier (1998), who investigated the paradoxical impact of technology based on consumers' pre-adoption expectation and post-adoption experience. In the previous section, consumer experience as a learnt outcome was discussed, emphasising how consumers accumulate knowledge from interacting with products. A consumer's experience of using a product would tend to affect his/her product/service evaluation, so it would be likely to further influence his/her subsequent purchase (Schiffman *et al.*, 2008) and possibly influence other people's purchases through word-of-mouth (Jiang, 2009). Consideration of this chaining of events is unquestionably important. Of course, some researchers argue that certain

contradictions exist to this model; Weigart and Franks (1989) and Goldman (1989), for instance, raise the impact of variables such as stress and anxiety on consumer behaviour, while other researchers such as Cowan (1983) or La Porte and Metlay (1975), represent other negative experiences brought about by the technologies. However, it is Mick and Fournier (1998) who finally seem to have addressed the opinion gap on consumer behaviour and technology.

Mick and Fournier (1998) and Fournier and Mick (1999) in conducting research based on technology products, concluded that they found eight themes which they termed 'paradoxes'. For their findings they coined the term 'Paradoxes of Technology', and in addition they offered descriptions of two types of consumer coping strategies for dealing with these paradoxes. They named these avoidance strategy and confrontation strategy (Mick and Fournier, 1998). As Mick and Fournier's paradoxes of technology and coping strategies are the foundation of the present research, they are discussed separately in the next sections.

2.4 The Consumers' Paradoxical Experience in Technology Products

Handy (1994) depicted 'Paradox' as a phenomenon wherein :

''…*many things contain their own contradiction, (and) many good intentions have unintended consequences*..''(p.56)

Accordingly, a paradox is defined as the existence of simultaneous opposite statements (Handy, 1994). In order to understand the concept better, a paradox should be distinguished from a related but different concept such as a dilemma or an inconsistency. A dilemma presents itself in a situation where one must choose one alternative over another; while an inconsistency may arise where there is a discontinuity of past patterns (Cameron and Quinn, 1988).

The development of technological innovations has enabled people to enjoy more spare time and access to activities than ever before. What the innovators of those technologies did not consider or even imagine, was the ‘unintended consequences’ of their actions and ideas (Handy, 1994, p. 56), and the ‘outcome that juxtaposes contradictory explanations’ (Johnson *et al*., 2008, p. 418) both of which exist in every aspect of our lives (Ting *et al.*, 2005). In Mick and Fournier’s (1998) research, informants were frequently found to use certain phrases to depict the paradoxical feeling, such as a ‘’double-edged sword’’ and a ‘’mixed blessing’’.

2.4.1.1 Paradoxes of Technology

Mick and Fournier (1998) point out some gaps in the research paradigm of consumer behaviour studies in technological innovation, and seek to address these gaps. They conducted an investigation of both pre- and post-adoption behaviour in the context of housing appliances, resulting in a new concept in marketing research: the paradoxes of technology. Table 2.3 below outlines the eight central paradoxes of technology brought by Mick and Fournier (1998).

Table 2.3 Eight Central Paradoxes of Technology Products

Source: Mick and Fournier (1998, p.126)

It is worth mentioning that Mick and Fournier's research was a longitudinal study, spanning a pre-adoption period when the technological products were just purchased by their participants, to the post-adoption stage six to eight weeks after consumers had started to use the products. These researchers employed grounded theory as their research strategy, with two major data collection techniques - phenomenological interviews and a questionnaire with an imaginary dream-telling exercise. Their study sets out a rigorous set of methods used for their data collection.

To elaborate the eight technology paradoxes, examples from Mick and Fournier's work are addressed in each paradox as given below:

Control/Chaos and Freedom/Enslavement Paradoxes – These two paradoxes normally appear together in their data collection, as most of the technology products are positioned to be able to facilitate control and freedom (Mick and Fournier, 1998). They are also the most salient paradoxes among the eight.

They offer an example in one informant's use of an answering machine to show both paradoxes in context. The informant bought an answering machine in order to be in control of her time and to allow her to pre-select particular phone-calls whilst having freedom to ignore others. However, it transpired that she began to feel enslaved by the machine, so that she felt she could not live without it. This case reveals a chaotic side to informants' use of technology, based around their anxiety, rather than the "real" or technological experience.

New/Obsolete Paradox

Because of the characteristics of technology, which are normally function-driven, the desire to own hi-tech products is normal. But also due to the rapid development of technologies, such hi-tech products will then be replaced by newer and more advanced versions in a very short space of time, before the others cease to function. Some informants in Mick and Fournier's study (1998) felt that their new purchases of hi-tech products would soon be made obsolete, with the result that they would either just feel envious of others who would buy newer versions, or that they themselves would feel constrained to pay more to get new ones.

Competence/Incompetence Paradox

That technologies may facilitate people to do what they could not do before is demonstrated by one of the informants in Mick and Fournier's study (1998), who

described his being able to present the work using his word processer (typing) to a standard he could not before have found acceptable using a typewriter. He gained competence in presenting as well as confidence that he could do it. But if this is true for some users, it is likely that for other users, the initial fear of technological complexity may not just block people from using new technology but make them feel more incompetent because they do not know how to use the new technology.

Efficiency/Inefficiency Paradox

Technologies can help to save time and labour. For instance, computers can deal with a huge amount of data in a short time, which hitherto would have required a lot of time from many people. However, it is also true that the upgrade of a computer system is very time consuming and that new software can be costly in activating the system to function as desired.

Fulfilling/Creating Needs Paradox

Technologies allow people to live more comfortably and, at the same time, may render life more complicated. An accessible example is the invention of cars. In Mick and Fournier's study (1998) one informant stated that while having a car fulfilled his need for mobility and time-efficiency, at the same time it created a need for him to learn basic knowledge about cars, in order to know if the car he purchased or hired was in good condition to get to his destination.

Assimilation/Isolation Paradox

This paradox is difficult to articulate without the use of an example; here the use of television technology helps to illustrate the concept. One informant in Mick and Fournier's study (1998) stated that her distant relatives were watching television programme while she and her husband were visiting them. On that occasion she felt

isolated by her relatives' attention to the television, whereas on other occasions she felt that television could be a tool for assimilation, for instance when friends were gathering together to watch an important game on the television.

Engaging/Disengaging Paradox

Mick and Fournier (1998) considered this paradox was the most abstract one. Two examples from their informants can provide some explanations of this paradox. An informant said that technology made her life easier (when she engaged with the technology) but, at the same time, she talked about television making people passive, encouraging people to disengage from thinking and other activities. Another informant often hunted with a bow and arrow. After some new and sophisticated metal bows were invented, it made hunting easier because they were more accurate. The informant reckoned the new tool provided accuracy and ease-of-use, but he also reckoned that hunting was not about accuracy, it was about the ability to do what people did more than 200 years ago. From the two examples above, it depicts that people feel great to be able to engage but also feel the negative quality of the disengagement from other essential things in life.

In reviewing Mick and Fournier's findings (1998) above, it can be seen that consumers encounter a number of paradoxes when using technology products, and that this can have great impacts on their consumption experience. It can also explain IDT as theorised by Rogers (2003), to explain why the late majority, laggards and later, added 'rejecters' (people who refuse to adopt/accept innovations) of technology are sceptical and cautious (Mick and Fournier, 1998). Although Mick and Fournier's research focussed on specific technologies (housing appliances) as a type of technology to obtain the results, it would seem that it has been acceptable to generalise from their results to other technologies, as all the paradoxes they laid out

can be conceptualised at an abstract and theoretical level (Johnson *et al.,* 2008). To this end, in the following section, some of the research which follows closely the Mick and Fournier paradoxes of technology model is discussed.

Competence/Incompetence, New/Obsoletes, and Fulfil/Create Needs Paradoxes

As mentioned earlier, marketers and practitioners are eager to understand consumer behaviour in adopting/accepting technological innovations so that services can be improved to out-compete competitors. However, adoption/acceptance behaviour research is based on the assumption that technological innovations are normally better, so that sooner or later they should be adopted by most people (Mick and Fournier, 1998; Rogers, 2003). Based on the findings of Mick and Fournier (1998), a few paradoxical results have been found in certain organisations wishing to introduce new or improved technology products/services to customers over their existing ones. This is based on the assumption that if organisations aim to provide a better (more updated) consumer experience then this will lead to greater consumer satisfaction and thus to greater profitability (Lee and Allaway, 2002). However, it is also possible that the introduction of new products/services may mean something completely different to existing customers – perhaps a change in their daily routine, or a change to a means they are not familiar with. Therefore, resistance to change (over innovations) is seen to be a normal stage in the consumer process of accepting or adopting new products (Ram and Sheth, 1989). Technology/innovation resistance can, therefore, become a potential issue, as adopting new technologies may require customers to find the time and effort to learn new tasks in order to master the new technologies. Not only might such demands on their resources put consumers off, but also those with certain personal characteristics, such as poor readiness for technological change, might be hindered by personal capacity in their willingness to adopt (Chen and Mort, 2007).

This issue can be reflected in the *Competence/Incompetence paradox*. At the same time as consumers may be experiencing the paradoxes imposed by the introduction of technological innovations, so too may the innovatory organisations be facing the challenge of irritating their existing consumers (Freedman and Sudoyo, 1999). Another related and important issue of new/improved technological innovations is that progress is fast and the cycle of change is very rapid, thus resulting in a shorter product lifecycle. In the face of this, consumers experience the dilemma of whether to upgrade to a new product or keep their existing one (Cui *et al.*, 2009). In this concept, two paradoxes are involved. First, the *New/Obsolete paradox* i.e. the existing products are made obsolete. Second, the *Fulfilling/Creating Need paradox* i.e. the new products may fulfil the needs, but they also create the needs to obtain them.

Assimilation/Isolation Paradox

At the same period of time when Mick and Fournier were conducting their research, Kraut et al. (1998) also looked at the paradoxical aspect of technologies. They investigated consumers' social involvement behaviour in the context of Internet usage. One of their findings was that although heavy Internet users may have benefitted from more access to Internet information, they evolved into weaker social relationships than those whose use was less heavy (Kraut *et al.*, 1998). In a similar vein, Cole (2000) found that heavy Internet users had less communication with their family. The findings suggest that heavy users have less face to face social communication with others, which is considered as a paradox that can be related to the *Assimilation/Isolation paradox* in Mick and Fournier's (1998) research.

However, the later research conducted by Kraut et al. (2002) appeared to contradict their previous research, which showed that heavy users made more visits to their

friends and families (Kraut *et al.*, 2002). The authors explained that a sampling problem might have led to the results being inconsistent. Nevertheless, a paradox still exists regardless of the generalisation issue.

From the discussion above, it could be argued that Mick and Fournier's eight central paradoxes have the capacity to cover and explain most of the paradoxical issues in technology product studies. The significance of their studies is, therefore, evidenced. A particular study which focussed on mobile technology, that echoes Mick and Fournier's paradox constructs, was conducted by Jarvenpaa and Lang in 2005. This application applied the paradox constructs into a popular technology which considerably influences people's everyday lives. Focussing on paradoxes in mobile technology is discussed below.

2.4.1.2 Paradoxes of Mobile Technology

Mobile technology is not new in the market, but its development as a profitable and highly competitive product has grown very quicky in the last decade. In a broader view, mobile technology could be said to contain all wireless communication technologies which enable people's mobility and flexibility. This area has attracted many types of research and studies over the last decade. The public's demand for mobility has urged the development of more advanced technologies enabling communication to be conducted anytime and anywhere. The mobile phone particularly, as the first device capable of combining hardware and software to enable vocal and text-based communication free from specific place, has maximised everyday mobility for users. As such, the mobile phone has become a major player in the market despite economic recession (Washington, 2009; Weber, 2009; Whitney, 2009). The rapid diffusion of mobile phones over these years has also contributed to the on-going development of the technology sector (Leung and Wei, 2000), and is

predicted to continuously grow. In the meantime, marketers are constantly trying to catch up with change, in order to gain some market share in this emerging and fast growing market.

It is then no surprise to see that the majority of studies relating to mobile technology focus on the mobile phones as being the most prominent example of mobile technology-enabled devices, which people carry around most or all of the time. In turn, consumer behaviour in using mobile phones is a widespread topic in marketing studies, with a focus, as mentioned earlier, on issues related to adoption/acceptance and prediction of future usage. On the other hand, only a few studies have investigated to date the paradoxical aspect of mobile technology use.

One important study, following Mick and Fournier's (1998) paradox model into a mobile technology context, is that of Jarvenpaa and Lang (2005). These authors have taken a different approach to data collection, and the scale of the research also differs from Mick and Fournier's (1998). Nevertheless, they conclude with eight paradoxical issues relating to mobile technology, which are similar to Mick and Fournier's. The detail of the paradoxes is given in Table 2.4 in the following page.

Table 2.4 Eight Paradoxes of Mobile Technology

Source: Loebbecke et al. (2008), Jarvenpaa and Lang (2005)

Although both Mick and Fournier (1998) and Jarvenpaa and Lang's (2005) studies are in a similar context – investigating consumers' experience in using technology products, there is one important difference and that is how the paradox is perceived.

Mick and Fournier's research is a longitudinal study, proving that the paradoxical perceptions develop according to pre-adoption expectation and post-adoption experience. The research of Jarvenpaa and Lang (2005), on the other hand, is a cross-sectional one, meaning that the paradoxes are perceived based on the co-existing paradoxical emotions experienced by consumers through the usage of a single product. Their investigation focusses purely on the post-adoption experience. Nevertheless, some similar paradox constructs emerged between the two studies. Jarvenpaa and Lang's findings on the Empowerment/Enslavement paradox, derived from their mobile technology study, were similar to Mick and Fournier's Freedom/Enslavement paradox. In addition, they found three other themes as consistent with previous findings: these were Competence/Incompetence, Fulfilling/Creating Needs and Engaging/Disengaging. This would strongly suggest that the above four paradoxical themes can be generalised to most technology products, while the remainder of the four paradoxical themes, Independence/Dependence, Planning/Improvisation, Privacy/Public and Illusion/Disillusion could be argued as distinctive to mobile technology only. An overview of the comparison is exhibited in Table 2.5 below.

Table 2.5 Comparison of Two Paradoxes of Technology Research

Source: Mick and Fournier (1998) and Jarvenpaa and Lang (2005)

As four of Jarvenpaa and Lang's paradoxes were similar to Mick and Fournier's, in this section only the four paradoxes which can be said to be unique to mobile technology are elaborated, based on Jarvenpaa and Lang's (2005) studies.

Independence/Dependence Paradox

Participants in the above study admitted that the independence acquired through mobility has become a form of dependence on technology (Jarvenpaa and Lang, 2005). While finding themselves to be free from time and geographical constraints, they also found themselves more dependent on the mobility that the technology provided. The ''24/7'', ''always on'' characteristic of mobile phones had become one of the things they could not live without.

Planning/Improvisation Paradox

Before mobile phones were widely used, people tended to plan ahead their schedules for work and social activities. However, in a world where most people have mobile phones with them, and so can be more efficient in co-ordinating their affairs, at the same time they become more improvisational, because they know this technology will allow them to co-ordinate things on the go. The paradox is that with no need to plan ahead, and require more effort in co-ordinating, and then, would lead to disorganisation, some people may lose the skills to plan things ahead (Jarvenpaa and Lang, 2005).

Illusion/Disillusion Paradox

Illusions come from the expectations from users. That is, they know the functions of the technology so that they expect to be able to use these at anytime, anywhere and for any purpose. The disillusions come from the disappointments as individuals come

to realise this technology cannot completely meet their expectations. For example, in terms of phones being able to function anywhere, this largely depends on the coverage of the network. In some places the connection is just not good enough to make a phone call. In terms of being usable any time, if users want to make a phone call to someone, it also depends whether the intended receiver is available and willing to talk. In terms of any purpose, if users want to browse websites, their success will also depends upon the stability of the connection or the bandwidth.

Private/Public Paradox

Mobile phones are considered to be used largely for private communications, but the characteristic of a mobile phone being free from spatial and temporal constraints means that people can take their private conversations into public space owing to the mobility which mobile technology has enabled. At the same time, this means that others in this public space may be forced to eavesdrop on the other's conversation. While fearing they may be invading privacy, they are also experiencing intrusion on their own privacy and right not to have to hear.

The above four paradox constructs are unique to mobile technology, particularly to mobile phones, but they are not the most observed paradox constructs reported in the broader view of mobile technology in the literature. Based on a review of the extant studies, Table 2.6 shows the most observed paradoxes arising in mobile technology studies.

Table 2.6 Most Observed Paradoxes in Mobile Technology Studies

Paradox	Context	Author(s)
Empowerment/ Enslavement	**Internet and wireless technology:** makes individuals continuously available but has also increased technological enslavement **(enslavement)**	Friedman (2005)
	Mobile phone usage in Australian youth: over-attachment, potential addiction, excessive behaviour in compulsive checking the phone **(enslavement)**	Walsh et al. (2008)
	Mobile TV service: users are **empowered** by being able to watch TV programmes everywhere but **enslaved** to the TV programmes	Loebbecke et al. (2008)
	(Ubiquitous) Wi-Fi use in public and semi-public place: users are **empowered** by being able to escape from routine and work in a different settings, e.g. in a café	Hampton and Gupta (2008)
Engagement/ Disengagement	**Internet and wireless technology:** partial attention to each engagement **(disengagement),** multi-tasking in communication with other activities **(engagement/disengagement)**	Friedman (2005)
	Mobile phone usage in Australian youth: multi-tasking, conflict with other things **(engagement/disengagement)**	Walsh et al. (2008)
	Mobile TV service: users **disengage** themselves from where they are (in bars, restaurants), users **disengage** themselves from their work	Loebbecke et al. (2008)
	Cellphones in public: users disengaged from others in presence when they talk on their mobile phones	Humphreys (2005)
	Mobile phone usage in different social settings: people's attitudes towards the use of mobile phones in public place and towards the prohibition of mobile uses in certain social situations	Mak et al. (2009); Nickerson et al. (2008)
Fulfilling needs/ Creating needs	**Need for safety/security:** for emergencies and general security	Campbell, (2007a) Ling and Yttri (1999)
Private/Public	**Cellphones in public**: public privatism – users enjoy bringing their private tasks to do in public or semi-public places	Hampton and Gupta (2008)
	Mobile phone usage in public settings: loud talk and the ringing, discourtesy, improper use	Wei and Leung (1999) Campbell (2007a; 2007b)
	Mobile phone usage on the train: private conversations in public by using mobile phones are perceived as more annoying than those carried out in face-to-face conversation	Monk et al. (2004)
	Mobile phone usage in different social settings: people's attitudes towards the use of mobile phones in public place and towards the prohibition of mobile uses in certain social situations	Mak et al. (2009); Nickerson et al. (2008)
Independence/ Dependence	**Mobile phone usage in Australian youth:** addition to being in contact with others; showed withdrawal symptoms when they were unable to use mobile phones **(dependence)**	Walsh et al. (2008)

According to Table 2.6 above, it can be seen that the empowerment/enslavement paradox is one of the most observed paradox constructs. This is unsurprising, in that technology is positioned to facilitate people's lives, and in the process to empower people (Hampton and Gupta, 2008). At the same time, people become enslaved to the technology as they point out that they feel they cannot live without it. The studies of Loebbecke et al. (2008) are related to mobile TV service – people enjoy watching TV programmes without being in front of their TVs in a particular location. But it also shows that users are so eager to catch up with the programmes, they feel that they cannot live without the mobile TV service. The study of mobile phone usage of Australian youth (Walsh *et al.*, 2008) particularly pinpoints such enslaved behaviour and perceptions, and suggests that empowerment/enslavement may be one of the most widely perceived paradoxes in the use of technology in general.

The other two paradoxes which are worth noting, are the independent/dependent and private/public constructs, which also receive particular attention in the extant literature. As can be seen in Table 2.6, comparing general and mobile technology paradoxes, these two paradoxes are unique to mobile technology, while the remainder, to be found in Table 2.5 (p. 32, empowerment/enslavement, create/fulfil needs and engaging/disengaging) apply to most technologies.

Studies related to mobile technology use in public settings focus on two areas – the use of mobile technology in different public places and in social situations. These two areas of studies may involve two different paradoxes in mobile technology contexts. Based on Jarvenpaa and Lang (Table 2.5), if people feel good to be able to do things in public by using mobile technology, or feel bad about other people's loud and intrusive conversations while using mobile phones in public, both of these kinds of feelings relate to the private/public paradox (e.g. Hampton and Gupta, 2008). If

people feel good to be able to engage themselves in different activities by using the phone in public, or feel bad about other people's engagement in other activities on the phone while they are physically with them, both can be seen to relate to the engagement/disengagement paradox (e.g. Mak *et al.,* 2009; Nickerson *et al.,* 2008). Studies related to mobile phone use in public settings show that people who privatise the public space feel good about it (Hampton and Gupta, 2008), while most of the bystanders, who are observers of other's usage of mobile phones, feel annoyed by the forced-into-noticing of other's conversation in terms of the content, volume and ringtones (Campbell, 2007a; Campbell, 2007b; Monk *et al.*, 2004; Wei and Leung, 1999).

Although the engaging/disengaging paradox construct seems to be one of the most common paradoxes for technology products, the concept of this paradox as used in the mobile technology context is slightly different from how it is used in regard to other technologies. Mick and Fournier's research suggests that people like to engage with technologies but also like to disengage with them at the same time, whilst Jarvenpaa and Lang's research suggests that people use (mobile) technology to be able to engage or disengage with people or tasks. Although this technology enables people to engage in different activities at the same time, people find themselves engaged in one task but at the same time disengaged in another task. Picking up a phone call in the middle of a meeting is a good example of someone disengaging from other people in order to engage with the individual on the other end of the phone call (Jarvenpaa and Lang, 2005).

The Fulfilling/Creating Needs paradox is perceived both by Mick and Fournier's (1998) and Jarvenpaa and Lang's (2005) studies. It is also shown in Campbell (2007a) and Ling and Yttri's (1999) studies to relate to mobile phones. This

emphasises that users generally perceive the fulfilment of their needs for security in having mobile phones.

After reviewing the extant literature on mobile technology paradox, it would appear that there are still three paradoxes, as demonstrated in Jarvenpaa and Lang (2005) that have yet to be studied. These are: competence/incompetence, planning/improvisation, and illusion/disillusion. This would lead to the conclusion that although the literature demonstrates that people experience certain paradoxes in their use of mobile technology, not everything is known about all paradoxes, and further studies are required.

In the research of both Mick and Fournier (1998) and Jarvenpaa and Lang (2005), attention is paid to investigating consumers' coping strategies. These are enacted in order to deal with perceived paradoxes as they arise. Consumer coping strategies are an important construct in paradox studies, and are discussed below.

2.5 Coping Strategies for Dealing with Paradoxes of Technology

2.5.1 Coping Strategies in General

Coping is a type of act in which people engage in an attempt to adapt to the environment, particularly to disruptive events in their environment. Coping strategies have traditionally been a focus of research in the field of psychology. Lazarus and Folkman (1984), for instance, define the act of coping as *" cognitive and behavioural efforts exerted to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (*p.141)''. Emotion- and problem-focussed coping is evidenced in cognitive and behavioural efforts (Lazarus and Folkman, 1984; Stone *et al.,* 1992). Emotion-focussed coping, also known as cognitive-effort coping, has the function of changing the perceptions of individuals

towards the disruptive event (situation) instead of altering the situation itself. The goal for engaging in emotion-focussed coping is ultimately to reduce emotional stress, and can be manifested in actions that demonstrate accepting, distancing or escaping from the situation. Problem-focussed coping, like behavioural efforts of coping, have the function of changing an unacceptable situation into an acceptable one. It can be manifested in actions such as seeking more information and evidence (Folkman and Lazarus, 1985; Lazarus and Folkman, 1984).

Given that by employing coping strategies an individual is attempting to enhance the chance of success and to restore a personal sense of well-being, they may employ an emotion-focussed or problem-focussed coping strategy, or a combination of both strategies, depending on the situation (Begley, 1998). The perspective of Holahan and Moos' (1987) coping strategies differs from those of Lazarus and Folkman (1984). Holahan and Moos (1987) categorise coping strategies into avoidance and confrontation strategies, but their sub-categories under these two coping strategies are similar to those of Lazarus and Folkman (1984): these are psychological (similar to emotion-focussed) and behavioural (similar to problem-focussed) coping strategies. Holahan and Moos' categorisation is adopted by both Mick and Fournier's (1998) and Jarvenpaa and Lang's (2005) studies and hence, also adopted in the present research.

2.5.2 Coping Strategies in Dealing with Technology Products

A few studies in the literature provide some insights into the coping strategies used by individuals while dealing with technology products. Beaudry and Pinsonneault (2005) summarise the literature regarding user adaptation to technology products dating from the early 1980s (e.g. Rice and Rogers, 1980) to the late 1990s. In this they include their own work, which is based on their coping model and user

adaptation (CMUA). Their summary suggests that all of the extant literature focusses on users' coping strategies in regard to the adoption and acceptance of technology products. However, as in the consumer experience literature, the question of post-adoption coping strategies in regard to technology products is not investigated until Mick and Fournier (1998) commenced their studies.

As mentioned in the previous section, Mick and Fournier's (1998) pioneer work 'Paradoxes of Technology' investigated the pre- and post-adoption/purchase experience of consumers. In the process they also investigated the coping strategies of these consumers in regard to the paradoxes they had outlined. However, rather than classifying coping strategies as emotion-focussed or problem-focussed, they adopted the typology of Holahan and Moos (1987), identifying behavioural (problem-focussed) avoidance and confrontation strategies which might be deployed in two stages: the pre-acquisition and the post-acquisition stage, also called the consumption stage. Their position was that psychological coping is too difficult to observe accurately (Mick and Fournier, 1998). On the other hand, the act of avoidance could be observed, referring to what users might choose to do in order to avoid facing a situation. The act of confrontation, conversely, would refer to what problems users might choose to confront in an attempt to solve them. The detail of the coping strategies based on Mick and Fournier's (1998) study is provided in Table 2.7 below.

Table 2.7 Behavioural Coping Strategies for Managing Technology Paradoxes and their Emotional Effects

Source: Mick and Fournier (1998, p133)

It should be noted that since the appearance of this particular literature, very little research of this type has been undertaken, perhaps because Mick and Fournier did not associate any relationships between any specific paradoxes and any specific coping strategies. Only two major studies have applied some of Mick and Fournier's ideas about behavioural coping strategies.

The study of Jarvenpaa and Lang (2005) on paradoxes of mobile technology, stressed the importance of consumer coping strategies in post-adoption/purchase behaviour. Following this, Cui et al. (2009) investigated consumers' adoption of new technology products, and found that confrontation coping strategies had a direct positive effect on the consumer's attitude towards new technology products, and on their intention to purchase/adopt the products. They argued also that a positive relationship becomes even stronger when mediated by positive beliefs about the product (e.g. perceived usefulness, perceived ease of use). Both of the above-mentioned studies indicate that coping strategies influence consumers' intention to purchase and to use the products.

Yi and Baumgartner (2004) also comment on how important it is for marketers to understand consumers' coping strategies when dealing with negative emotions. This is because the adoption of coping strategies may influence a consumer's post-adoption/purchase behaviour, such as repeat purchase or negative word-of-mouth. Yi and Baumgartner's position (2004) can be linked to two realms of consumer behaviour studies. The first realm is the understanding of consumers' coping strategies when undergoing negative emotions, which is discussed in this section. The second realm is the understanding of the impact of coping strategies on the consumers' intention to purchase or repurchase a product. The comment of Yi

and Baumgartner (2004) on the second realm elicits the next theoretical concept for the present research: consumer loyalty.

2.6 Consumer Loyalty

The concept of consumer loyalty is often related to the concept of brand (Mascarenhas *et al.*, 2006). For instance, it has been found that brand loyal consumers are less price-sensitive and are willing to pay a premium for the product (Mellens *et al.*, 1996). Loyal customers have greater future purchase intention (Casaló *et al.*, 2008; Flavián *et al.*, 2006), and not only give more business by purchasing and consuming but also by recommending their preferred brands/products to others. As they are familiar with the brands/products, it also costs companies less to serve them (Reichheld and Sasser, 1990).

In the early stages of brand loyalty studies, the focus of research was on various consumer behaviours such as proportion of purchase, purchase sequence or probability of purchase (Dick and Basu, 1994). This way of measuring brand loyalty came to be criticised as inaccurate (e.g. Dick and Basu, 1994; Jacoby and Chestnut, 1978), since high level of repurchase (considered as very loyalty to the brand) might just as often be due to a variety of situational restraints (e.g. location constraints) but fundamentally, loyalty to a particular brand. By only focussing on the behavioural measures, it was argued that measures of loyalty might be spurious. Day (1969) for instance detected the shortcomings of such brand loyalty measures by proving that consumer attitude is a factor in predicting real brand loyalty. He proposed two other types of measure, upheld by Lutz and Winn (1974), which were behavioural and attitudinal measures of loyalty. Since then, this bi-dimensional concept has been combined into what is known as 'composite loyalty' (Jacoby, 1971). Oliver (1999) concludes the current view of brand loyalty as being: '*'a deeply held commitment to*

rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or some brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour'' (p. 34). Although Oliver (1999) does not stress the two aspects of loyalty, his definition of loyalty covers what 'composite loyalty' would measure.

The studies of Chaudhuri and Holbrook (2001) on the other hand do distinguish between the two aspects of loyalty, and provide clear definitions of the two loyalty constructs. They define behavioural loyalty as ''*the willingness of the average consumer to repurchase the brand*'', and attitudinal loyalty as ''*the level of commitment of the average consumer toward the brand*'' (p. 83). Their definitions have been widely adopted (e.g. Rauyruen and Miller, 2007). The attitudinal loyalty definition is particularly considered as reflecting the loyalty scale of Zeithaml et al. (1996), which includes positive word-of-mouth, willingness to recommend and encourage others to use the product and/or service. Attitudinal loyalty can explain repeat purchases (behavioural loyalty) as based on a strong internal tendency to preference rather than based on situational constraints (Dick and Basu, 1994; Jacoby and Chestnut, 1978). Accordingly, the concept of composite loyalty has been widely adopted in marketing literature (e.g. Chaudhuri and Holbrook, 2001; Rauyruen and Miller, 2007; Rundle-Thiele, 2005).

It is said that composite loyalty is widely adopted for understanding real consumer loyalty. However, behavioural loyalty remains an arguable construct for identifying consumer loyalty. The cognitive basis of commitment to brand/product makes attitudinal loyalty a useful construct for understanding a consumer's relationship/loyalty to the brand/product. Attitudinal loyalty can be extended from the commitment to the brand/product, to showing the on-going, continuing relationship

(Mascarenhas *et al.*, 2006) with the brand/product. Given that no specific brand is being considered in this research, but rather consumers' on-going relationship with the mobile technology industry, there is a sound rationale for adopting attitudinal loyalty in order to understand consumer loyalty to the industry. Therefore, the present research adopts attitudinal loyalty to understand consumers' loyalty to the mobile technology industry.

2.7 Summary

This chapter reviews the extant literature on consumers' experience in the use of technology products. It starts by reviewing what experience means in marketing literature. It identifies the relevance, for the present research, of experience as a learning outcome that may influence future purchase. The underpinning theory, which is paradoxes of mobile technology, is discussed. This is followed by a review of coping strategies that deal with the paradoxical experience. The chapter concludes with a discussion of consumer loyalty and the reason for including this construct in the research. Attitudinal loyalty is identified as the loyalty type that is most relevant for the research, representing an on-going relationship with a product.

Chapter 3.

An Overview of The Culture Theory

3.1 Introduction

The previous chapter discusses the extant literature in regard to consumers' experience in using technology products, particularly mobile technology products. This chapter reviews why the present research chose to conduct cross-cultural research, and how cultures can be compared.

This chapter consists of five parts. The first part delineates the importance of conducting cross-cultural research. The second part addresses how culture is operationalised in the present research. The third part reviews the approaches to the study of culture and points out the most appropriate approach for this research. The fourth part argues the use of dimensions of culture and explains the choice of the present research. And the final part discusses the different approaches of assessing culture that provide guidance for conducting and evaluating cross-cultural research.

3.2 Importance of Cross-Cultural Consumer Behaviour

The need for cross-cultural studies emerges due to the rapid growth of international marketing development, as there are now more companies trying to extend their boundaries to foreign markets (Schiffman *et al.*, 2008). Consumer behaviour in different business contexts in different cultures needs to be understood for the purpose of enriching marketing theories. Also it can help international practitioners

decide if they should employ standardisation or adaptation of products/services as well as marketing strategies in the global marketplace.

Scholars (e.g. Douglas and Wind, 1987; Walters, 1986) who advocate employing standardised strategies internationally support the concept that the whole world is increasingly homogenous. Also, Levitt (1983) and other scholars support using an identical strategy in the global market, because of the economies of scale in both products/services and marketing strategies. On the other hand, supporters for an adaptive strategy for different markets aver that '*standardisation is at best difficult, and at worse, impractical*' (Jain, 1989, p. 71). Ruigrok and van Tulder (1995) consider globalisation is overstated, and it is almost impossible to use identical marketing strategies everywhere. The argument persists as to whether standardisation or adaptation marketing strategies should be applied.

A recent study on this issue was conducted by Vrontis et al. (2009). The results suggest that it is irrational for international marketers to employ identical marketing strategies in the global market. Therefore, understanding different markets in order to tailor or customise the marketing strategies for specific countries or cultures is evidenced as a necessity.

Due to the importance of understanding different cultures, how to study culture needs to be addressed. In the following section, how to operationalise culture is discussed.

3.3 Operationalising Culture

An operationalisation of concepts refers to the process of making intangible concepts into measurable/testable items (Ekinci, 2011). The process can be broken down into two steps: firstly, defining the concepts; and secondly, translating the concepts into

measurable elements. Therefore, in order to be able to operationalise culture, what culture is should be defined first, and then the measurable element of culture should be identified.

3.3.1 The Definitions of Culture

There are many different definitions of culture in the extant literature within different disciplines, such as anthropology, sociology, and philosophy. It is not easy to find one suitable, broad definition, and it is still considered a challenge to define it (Kuper, 2009). American anthropologists Kroeber and Kluckhohn (1952) review a list of over 160 different culture definitions. They are still not satisfied with those, so they add one more of their own that depicts the variety of this concept. Kroeber and Kluckhohn (1952) state that culture : '…*consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other as conditioning elements of further action*.' (p. 357).

This definition of culture by Kroeber and Kluckhohn (1952) has a great impact on later cultural studies. Their idea of human groups being distinctive from other groups, based on their patterns of behaviour, is echoed by Hofstede (2001), who considers culture a '*collective programming of mind which distinguishes the members of one group or category of people from those of another*' (p.9). A similar idea is shared by Solomon et al. (2006), who think of culture as '*the accumulation of shared meanings, rituals, norms and traditions among the members of an organisation or society*' (p. 377), and Schiffman and Kanuk (2007), who define culture as *'the sum total of learnt*

beliefs, values and customs that serve to direct the consumer behaviour or members of a particular society' (p.394). Therefore, culture is like glue that binds people/groups together, and those groups are bound together because they share the same characteristics (de Mooij, 2005). The 'glue' consists of similar beliefs, attitudes, norms, roles and values. Accordingly, it is suggested that people who share the same culture have similar beliefs, values, attitudes and rituals, normally speak a similar language and live in the same geographic region for a particular period of time. The groups of these people could form a community, society, and even a country.

By contrast, people from different cultural backgrounds behave differently towards different contexts. Sekaran (1983) asserts that people from different cultural backgrounds have distinctive characteristics in economic, political, legal, religious, linguistic, educational, technological and industrial environment aspects, and these different aspects or influences are interrelated. It suggests that if businesses can identify and reconcile the differences between different cultures, they can acquire competitive advantage in the marketplace (Dunning, 1997). Gaining competitive advantage in a competitive world seems to be a necessity. How to identify the cultural differences, i.e. how to measure cultures so that they can be compared, has been a long-running task for marketing researchers and practitioners.

3.3.2 The Elements of Studying Culture

Taking the summary of the culture definition above, people who have the same cultural background share similar beliefs, standards, values, attitudes, rituals and language, and it is suggested that people having similar or the same beliefs, standards and values behave similarly towards certain things. As a result, people's consumption behaviour can be influenced by their cultures. Thereby, the influence of

culture on consumer behaviour cannot be ignored by marketing researchers (Usunier and Lee, 2009). An increasing interest of cultural differences in the marketing studies has been observed in recent years (Soares *et al.*, 2007).

Sojka and Tansuhaj (1995) conclude that three elements should be included for studying culture, based on their review of cross-cultural consumer research in the past two decades. The three elements are: language, material goods/artefacts and value/belief systems. However, values have been widely studied as the key element of culture (Luna and Gupta, 2001; Watkins, 2010), based on their link to human behaviour (Smith and Schwartz, 1997; Rokeach, 1973). The definition of values by Rokeach (1973) is considered to be the major theoretical foundation for consumer behaviour research on values (Watkins, 2010). He defines values as *'an enduring belief that one mode of conduct or end-state of existence is preferable to an opposing mode of conduct or end-state of existence. A value system is an enduring organization of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance'.* (p. 5). Also, Schwartz and Bilsky (1990) and Smith and Schwartz (1997) conclude the meaning of values from the extant literature, stating that '*values are beliefs…values refer to desirable goals, transcend specific actions and situations…….values serve as standards to guide the selection or evaluation of behaviour people and events….. values are ordered by importance relative to one and another*.' (Smith and Schwartz, 1997, p. 80,). In addition, values and beliefs are grouped as one of the components of culture (Craig and Douglas, 2006; Trompenaars and Hampden-Turner, 1997). Accordingly, values encompass the elements that determine people's behaviour, and they are ordered in priority over other values. As stated before, values are one of the most common and key elements of culture, thereby some scholars define culture as a set of value patterns (e.g. Luna and Gupta, 2001), and consider values the core concept in their

definition of culture (Hofstede, 1991; Kroeber and Kluckhohn, 1952; Prasnikar *et al.*, 2008). As a result, values are considered to be a suitable 'system' for understanding culture, and they are exercised as the main element for measuring culture.

Having examined why the value system is chosen to assess different cultures, different approaches of studying culture are to be discussed, as they affect the comparability of the findings across culture.

3.4 The Approach of Studying Culture

Previous scholars have concluded two viewpoints of conducting cultural research - the emic and the etic approach - and a convergence of these two viewpoints is believed to enrich cultural research (Berry, 1989; Maheswaran and Shavitt, 2000; Malhotra *et al.*, 1996; Schaffer and Riordan, 2003). Therefore, these three approaches are discussed below.

3.4.1 Emic Approach

The term 'emic' is derived from 'phonemic', meaning 'specific' (de Mooij, 2004). An emic approach is normally considered to be an ethnography approach (Ember and Ember, 2001), as researchers who follow this approach generally focus on the issues of the subjects being studied (Luna and Gupta, 2001). They take culture as a 'blueprint' of human activities which explains people's behaviour towards social phenomena. Another definition from emic researchers, is that culture is like the lens through which most of the phenomena are seen (Luna and Gupta, 2001; McCracken, 1986). Emic approach research is culture-specific (Craig and Douglas, 2006); it aims to look at the uniqueness of each individual culture (Ember and Ember, 2001). It favours within-culture investigation (Craig and Douglas, 2006), and provides a 'thick

description' of culture (Geertz, 1973). That means that the research conducted by this approach reveals the 'culture-rich' information (Luna and Gupta, 2001).

3.4.2 Etic Approach

Similar to the emic, the term 'etic' is derived from 'phonetic', meaning 'general'. An etic approach is to use external criteria to compare different cultures (de Mooij, 2004). Etic researchers generally look for generalisation and focus on commonalities among all cultures (Berry, 1989). The commonalities (e.g. variables and constructs) have to be absolute or universal (Malhotra *et al.,* 1996) and culture-free (Luna and Gupta, 2001), so that they can be compared between cultures – to find out how different or similar these cultures are (Luna and Gupta, 2001). As cross-cultural research generally aims to look at similarities or differences between different cultures, the etic approach is mainly for cross-cultural research.

3.4.3 Combination of Emic-Etic and Adapted Etic Approach

From the definitions of emic and etic approach, it is clear that the etic approach is meant to conduct cross-cultural research. However, Schaffer and Riordan (2003) argue that employing the etic approach to make a cross-cultural comparison may fail to consider the culture-specific factors, which may be the cause of the differences or similarities between cultures. Berry (1989) states that the term 'cross-cultural' has embodied the two approaches. Therefore, a combined emic-etic (Berry, 1989; Buil *et al.*, 2012; Malhotra *et al.*, 1996; Schaffer and Riordan, 2003) or an adapted etic (Douglas and Craig, 2006) approach are recommended for cross-cultural research. The combined emic-etic or adapted etic approach assumes the theories and constructs are universal but a further examination of these theories and constructs in each context is conducted. The attempt is to adapt the theories in each context, while the differences are also considered.

The emic-etic combined approach is considered the best practice in conducting cross-cultural research (Schaffer and Riordan, 2003) and can provide a more complete understanding of cultures (Luna and Gupta, 2001). However, this combined approach has a conflict with the emphasised measurement equivalence, where all constructs under investigation should exist in the cultures under investigation, as this is one of the important issues to be considered while conducting cross-cultural research (see 4.2 cross-cultural research methodological considerations, p. 80). As a result, the present research was conducted based on the etic approach, so that the similarities and differences can be compared between cultures. The detail of how the research was designed is addressed in Chapter 4, *Methodology* (p. 79).

As the etic approach focusses on comparing universal characteristics of cultures, the similarities and differences between cultures can be identified. Some existing dimensions of culture theorised by scholars based on their empirical cross-cultural studies are employed in the extant cross-cultural research. These dimensions of culture are discussed next.

3.5 Dimensions of Culture

Cultures can be described based on their specific characteristics, or they can be categorised into dimensions of national culture (de Mooij, 2004; de Mooij, 2010). Their characteristics are formed through observations, and derived into dimension models based on large surveys. For example, an early model of cultural dimensions is proposed by Parsons and Shills (1951), who categorise cultural patterns into five dimensions: affectivity versus affective neutrality, self-orientation versus collectivity orientation, universalism versus particularism, ascription versus achievement and

specificity versus diffuseness (Straub *et al.*, 2002). These kinds of dimensions are all bi-polar, measured on polar scales, and countries under investigation are all ranked based on the degree of their cultural dimensions. Therefore, each country has a score for each cultural dimension, and these scores are only meaningful when they are compared with other countries as they are not absolute but relative values (Hofstede, 1980). Some scholars (e.g. de Mooij; 2004; de Mooij, 2005; de Mooij, 2010) consider country scores are important as they can act as an independent variable when analysing consumption data. Hence, the established dimensions of culture are considered more useful when they also provide country scores.

Using dimensions of culture to distinguish between cultures of countries inevitably receives criticism, which is mainly due to the relevant aspects of culture not all being captured fully (Briley *et al.*, 2000). Nevertheless, the idea of using dimensions of culture is advocated by scholars (e.g. Smith *et al.,* 1996; Soares *et al.,* 2007). Smith et al. (1996) stress that the advantages outweigh the limitations: '*The identification of reliable dimensions of cultural variation should help create a nomological framework that is both capable of integrating diverse attitudinal and behavioural empirical phenomena and of providing a basis for hypothesis generation.' (*p. 232). Therefore, comparing cultural differences based on dimensions of culture is considered appropriate.

There are a few dimensions of culture in the extant literature applied by marketing researchers for cross-cultural research; identifying reliable ones is crucial. The following section discusses dimensions of culture as developed by a variety of scholars.

3.5.1 Dimensions of Culture in the Literature

There are a few studies concluding different cultural dimensions based on values and belief systems, which were developed by different scholars over time. The prime dimensions of culture in mainstream literature are listed below:

Table 3.1 Dimensions of Culture in Mainstream Literature

Author(s)	Value orientation/ dimensions of culture	Value base
Kluckhohn and Strodtbeck (1961)		Human problem solutions
Hall (1976)		Ways of communication
Hofstede (1980, 2001) Hofstede and Bond (1988) Hofstede et al. (2010)		Work-related values
Trompenaars and Hampden-Turner (1997)		Work-related values/management relevant problem solutions
Schwartz (1994)		Work-related values
House et al. (2004)		Leadership behaviour present and future

As can be seen from Table 3.1, there have been a few major classifications of the dimensions of culture developed since the 1960s, and some of the theories contain similar dimensions to others. Among these theories, Hofstede's cultural dimensions (1980, 2001) are robust (Leung *et al.*, 2005), and the most cited theory over the last two decades following its development – from 1981 to 1998, there have been 1,706 journal articles citing Hofstede's *Culture's Consequences* (Hofstede, 1980), and the majority of citations received are business-related studies (Baskerville, 2003; Sivakumar and Nakata, 2001). The popularity and growing use of his theory are advocated by some scholars. For example, Fernandez et al. (1997) state that: '*(Hofstede's theory is) a watershed conceptual foundation for many subsequent cross-national research endeavours*' (p. 43-44).

Likewise Sekaran (1983) states that: '*(Hofstede's theory is) the beginnings of the foundation that could help scientific theory building in cross-cultural research' (*p. 63). Other cultural dimensions unearthed by other later scholars contain similarities to or extensions from Hofstede's dimensions (e.g. House *et al.,* 2004; Schwartz, 1994), which prove a convergent result to support his theory. Accordingly, Hofstede's theory is discussed first in the next section, followed by other scholars' cultural dimensions

3.5.1.1 Hofstede's Dimensions of Culture

Hofstede (1980, 1991, 2001), Hofstede and Bond (1988) and Hofstede et al. (2010) develop a model consisting of six dimensions of national culture based on the work-related value, to help explain the value differences. The six dimensions are: power distance, individualism/collectivism (IDV), masculinity/femininity (MAS), uncertainty avoidance (UAI) (Hofstede, 1980, 1991, 2001) long/short-term orientation (LTO) (Hofstede and Bond, 1988), and indulgence vs. restraint (IVR) (Hofstede *et al.,* 2010). The long/short term orientation which was originally stated as Confucian

Dynamics (Hofstede and Bond, 1988) was added in to cover a new construct developed from Chinese culture. IVR is the latest cultural dimension released in 2010.

The definitions of the six cultural dimensions are listed in Table 3.2 below. The discussion of these dimensions is to follow.

Table 3.2 Hofstede's Culture Dimensions

Source: de Mooij (2010); Hofstede (2001); Hofstede et al. (2010)

Power Distance Index (PDI)

People in countries which have large PDI tend to accept hierarchy and authority in society; they have stronger dependency in relationships between parent and children,

and bosses and subordinates; social position is important, as well as the age – older people are more respected in this culture. On the contrary, people in countries with small PDI stress equality in rights and opportunity; authority is considered negatively; people who are powerful try not to show their status, and older people try to look younger (de Mooij, 2010; Hofstede *et al.*, 2010).

Business-related research focussing on PDI shows its relevance in the diffusion of innovation (Dwyer *et al.*, 2005); the ICT adoption rate (Erumban and de Jong, 2006); the information search activities (Dawar *et al.*, 1996); the formation of service quality expectation (Reid, 2011); innovativeness (van Everdingen and Waarts, 2003; Yaveroglu and Donthu, 2002); the service quality perceptions (Donthu and Yoo, 1998; Furrer *et al.,* 2000) and the perceived after-sales performance (van Birgelen *et al.*, 2002).

Individualism/Collectivism (IDV)

People in individualistic culture are 'I'-conscious; personal opinions and individual decisions are valued. They give their priority to variety, adventure and the task, and they are normally more explicit in verbal communication. On the other hand, people in collectivistic culture are ''We'' conscious; their identity is based on the social system. They prioritise harmony with in-groups and relationships with people, and their communication style is more implicit (de Mooij, 2010; Hofstede *et al.*, 2010).

Research related to business (including marketing) and IDV shows that IDV is related to the diffusion of innovation (Dwyer *et al.*, 2005); the ICT adoption rate (Erumban and de Jong, 2006); the formation of service quality expectation (Reid, 2011); the service quality perceptions (Donthu and Yoo, 1998; Furrer *et al.,* 2000), and the perceived after-sales performance (van Birgelen *et al.*, 2002).

Masculinity/Femininity (MAS)

People in masculine cultures focus on achievement and performance, and they have to be demonstrated. It is important to show one's success to others. On the contrary, people in feminine cultures focus on quality of life and caring for others (people-oriented). They are modest, and they tend not to show off (de Mooij, 2010; Hofstede *et al.*, 2010).

Research related to business studies and MAS shows that MAS is related to diffusion of innovation (Dwyer *et al.*, 2005); the formation of service quality expectation (Reid, 2011); service quality perceptions (Furrer *et al.*, 2000), and perceived after-sales performance (van Birgelen *et al.*, 2002).

High/Low Uncertainty Avoidance Index (UAI)

People in high UAI cultures are seen to dislike ambiguity and tend to avoid facing uncertainty. Therefore, they require rules and formality to structure life and avoid uncertainty, and they believe in experts. They are more process-oriented, focussing more on the process than the results. By contrast, people in low UAI cultures are seen to take ambiguity and uncertainty easily. They have few rules and less ritual behaviour. They are result-oriented, focussing on the results more than the process (de Mooij, 2010; Hofstede *et al.*, 2010).

Research related to business studies and UAI shows that UAI is related to the information search activities (Dawar *et al.*, 1996); the ICT adoption rate (Erumban and de Jong, 2006); the formation of service quality expectation (Reid, 2011); the service quality perceptions (Donthu and Yoo, 1998; Furrer *et al.,* 2000) and the perceived after-sales performance (van Birgelen *et al.*, 2002).

Long/Short-Term Orientation (LTO)

People in long-term orientation cultures tend to show persistence (perseverance), ordering relationships by status and observing this order, thrift, and a sense of shame. On the other hand, people in short-term orientation cultures tend to show respect for tradition; to reciprocate greetings, favours and gifts; to save one's 'face' (with regard to one's credit, reputation etc.) and have personal steadiness and stability (de Mooij, 2010; Hofstede *et al.*, 2010).

Research related to marketing studies and LTO shows that LTO is related to diffusion of innovation (Dwyer *et al.*, 2005); the formation of service quality expectation (Reid, 2011); and service quality perceptions (Donthu and Yoo, 1998; Furrer *et al.,* 2000).

Indulgence vs. Restraint (IVR)

The definition of indulgence is stated as '*a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and fun',* where restraint ''*reflects a conviction that such gratification needs to be curbed and regulated by strict social norms'* (Hofstede *et al*., 2010, p. 281). The IVR cultural dimension is the latest dimension released by Hofstede et al. (2010) and is related to perceptions of life control, freedom of choice and importance of leisure. As IVR is relatively new, a very limited number of empirical results are observed. Lanier and Kirchner (2012) include Hofstede's cultural dimensions to explain the national consumption of the Coca-Cola Company's beverages, and there is a 17% increase in variance explained when adding IVR into the well-studied five cultural dimensions. It shows that IVR is a dimension that affects the consumption of Coca-Cola beverages worldwide, and it also shows that IVR relates to leisure or freedom of choice (beverage consumption). Another study relating to IVR is conducted by Akdeniz and Talay (2013), who relate to box office performances of films and cultural background.

Their findings show that indulgent cultures have a positive impact on box office performance. That also shows the relationship between leisure and IVR.

Based on the review of literature relating to Hofstede's six cultural dimensions, it is shown that all of the dimensions are proven to be related to consumer behaviour in different contexts. Hofstede's dimension model is widely adopted by academic researchers and practitioners due to its conciseness and straightforwardness (de Mooij, 2010). Accordingly, the present research includes Hofstede's six cultural dimensions, to find out the relationships between cultural dimensions and the perceptions of paradoxes of mobile technology, which were addressed in the previous chapter, Chapter 2*, Consumer Paradoxical Experience with the Use of Technology and Consumer Loyalty (p. 10).*

However, the application of Hofstede's national cultural dimensions is not without criticism. There are three major critiques from the extant literature, which are discussed next.

The first one, Hofstede's research methodology, is criticised the most, particularly in sampling. As stated, his data were collected from the subsidiaries in 66 countries in a single organisation (IBM). Respondents in his studies had a similar occupation (mainly in marketing and sales)(McSweeney, 2002), under the same corporate culture, and male dominated (containing gender bias) (Orr and Hauser, 2008). The data from such a set of samples were not considered to be generalisable to the majority of the public (McSweeney, 2002). The second critique is the argument regarding equating nation with culture (e.g. Baskerville, 2003; McSweeney, 2002). The third is the levels of analysis; here the concern is with the theory's application to the individual-level (Brewer and Venaik, 2012; de Mooij, 2013).

Scholars such as Sivakumar and Nakata (2001) acknowledge the first critique and suggest a sampling design when applying Hofstede's theory to other studies, while Williamson (2002) points out that equating the results from the 'unrepresentative' IBM samples in each country with the results of a nation, would not affect the relative positions of each nation, based on their scores. However, Williamson (2002) also acknowledges the lack of representativeness of IBM staff to their respective national cultures, but stresses that the representativeness differs between nations. Accordingly, the theory cannot be completely rejected, since the applications to other studies are still feasible.

With regard to the second critique, several scholars (e.g. Sivakumar and Nakata, 2001; Soares *et al.*, 2007; Steenkamp, 2001) advocate the use of proxies (using countries to resemble cultures, which will be discussed in 3.6.2, p. 72), so this critique has been addressed.

The last critique refers to application to the individual level. Since Hofstede's dimensions of culture are the results of the aggregation of the properties of individuals, they are treated as country-level variables (de Mooij, 2004). It is, therefore, not workable to test it on the individual level, which may result in an ecological fallacy (i.e. predicting an individual's values from their national cultural dimensions) (Hofstede, 1980, p. 29; Hofstede, 1991, p. 112; Hofstede, 2001, p. 16). The critique is normally based on studies which misuse Hofstede's theory, by assuming an individual's values are consistent with his/her national culture. The inappropriate application of Hofstede's theory is addressed by scholars such as Brewer and Venaik (2012) and de Mooij (2013).

According to the critiques and their responses, it appears that employing Hofstede's cultural dimensions as a theoretical background is still an appropriate dimension model for cross-cultural research, including the present research. However, a further discussion of its application thus, will be addressed in 3.6.5 (p. 76).

The reasons for adopting Hofstede's dimensions of culture in the present research have been discussed. In the following sections, dimensions of culture developed by other scholars will be discussed, particularly the similarity of their theories to Hofstede's, in order to explain the choice of the dimensions of culture in the present research.

3.5.1.2 Kluckhohn & Strodtbeck and Trompenaars & Hampden-Turner

Kluckhohn and Strodtbeck's (1961) five dimensions are discussed together with Trompenaars and Hampden-Turner's (1997) dimensions, because the latter adopted Kluckhohn and Strodtbeck, with an expansion to seven dimensions.

Although Kluckhohn and Strodtbeck's works are recognised in many studies, their investigations are based on a few cultural groups in south-western US, meaning that their cultural dimensions are not developed from different countries (de Mooij, 2005), and are not suitable for applying to cross-cultural research, especially cross-nation research like the present research wished to conduct. However, their cultural dimensions are adopted and extended by Trompenaars and Hampden-Tuner (1997) to seven dimensions which are applied to work-related values across countries.

Trompenaars and Hampden-Turner (1997) conclude three categories of queries in deriving their dimensions of culture: relationships with people, attitudes to time and attitude to the environment. According to these three categories, they summarise seven dimensions of culture (bi-polar orientations) as shown in Table 3.3 below.

Their work has also been adopted in various cross-cultural studies. For example, Kets de Vries (2001) includes their work in part of the model he develops, called a 'wheel of culture'.

Table 3.3 Summary of Trompenaars and Hampden-Turner's Dimensions of Culture

Source: Prasnikar et al. (2008); Trompenaarss and Hampden-Turner (1997)

Although Trompenaars and Hampden-Turner's dimensions of culture also support employing nationality as an important source of culture, their work focusses on international business/management. They look at managerial behaviour instead of consumer behaviour. Some theories developed from work-related value are prevalently applied to other discipline. For example, Hofstede's cultural dimensions which were developed from an organisation context, have been applied to psychology and to name a few. However, Trompenaars and Hampden-Turner's research has a major deficiency in that there are no country scores. That means their cultural dimensions are limited when applied to marketing studies, as the consumption data cannot be related to country scores (de Mooij, 2004; de Mooij, 2005). Accordingly, the present research does not consider using their dimensions to be the fundamental theory.

3.5.1.3 Hall's Dimensions of Culture

Hall's (1976) high and low context culture is based on the culture's tendency in communication style. A high-context communication culture refers to the messages which are made implicit, and a low-context communication culture refers to explicit messages made to others.

In high context (HC) societies, people have the tendency to pay more attention to reading other's meaning i.e. to understand what the counterparts really mean through the implicit and non-verbal cues, because many meanings are left unsaid (Hall, 1976). How words are used is very important, as a few words can pass a complex message through to their in-groups, but may not be understood by people outside the group. It is said that the role of relationships is important in the high context culture, as meanings in words and cues are internalised in the person. On the contrary, in low context (LC) societies, people are explicit and the messages are

clear without bearing other meanings – they explain themselves. Hall's HC/LC cultural dimensions mainly aim at facilitating the communication styles between different cultures, and are useful for understanding cross-cultural consumer behaviour (de Mooij, 2004).

However, it is suggested that Hall's cultural dimensions are correlated with Hofstede's individualism/collectivism (de Mooij, 2011; Gudykunst *et al.*, 1996; Hoftstede, 1980) where HC is related to collectivistic cultures, and LC is related to individualistic cultures. Since Hall's theory can be explained by one of Hofstede's cultural dimensions, adopting Hofstede's six cultural dimensions can investigate more dimensions which may be related to consumer behaviour under the context of the present research. Hall's HC/LC cultural dimensions are therefore not considered for the present research.

3.5.1.4 Schwartz's Dimensions of Culture

Schwartz's work contains seven value types which were developed from the value survey of Rokeach (1973). The values are also focussed on work-related values (de Mooij, 2004; de Mooij, 2005), and based on national culture differences. Scholars like de Mooij (2005) do not consider Schwartz's 'value types' as cultural dimensions, as these value types are not statistically independent. Other scholars (e.g. Craig and Douglas, 2006; Leung *et al.*, 2005) have a different viewpoint, and consider the seven 'value types' to be culture-level dimensions. However, among scholars, some (e.g. Craig and Douglas, 2006; Erumban and de Jong, 2006; Leung *et al.*, 2005) consider that Schwartz and Hofstede's cultural dimensions contain certain similarities. A summary of the comparison of both cultural dimensions is shown below.

Table 3.4 Comparison of Hofstede and Schwartz's Research

	Hofstede	**Schwartz**
Year of publication	1980, 2001	1994
Unit of comparison	*Nation*	*Nation*
Value base	*Work-related values*	*Work-related values*
Research approach	*Etic*	*Etic*
Number of countries studied	40 (from 66 countries)	38 (41 societies)
Country score available (for comparison)	*Yes*	*Yes*
Data collection method	*Survey*	*Survey*
Sample/Context	From one MNC employees	Teachers
Cultural dimensions developed	Five dimensions **1.** *Individualism/Collectivism* *2. Masculinity/Femininity* *3. Power distance* 4. Uncertainty avoidance 6. Long/Short-term orientation	Seven dimensions 1. Conservatism 2. Intellectual autonomy 3. Affective autonomy The above three are similar to Hofstede's *Individualism and collectivism* 4. Hierarchy 5. Egalitarian commitment The above two are similar to *power distance* 6. Harmony 7. Mastery The above two are similar to *masculinity and femininity*

Note: Similarities are marked in italic.

Source: Hofstede (1980, 2001); Schwartz (1994)

Schwartz's dimensions were developed slightly later than Hofstede's studies, although he claims that his approach is different from Hofstede's. Although their

models have some similarities (marked in italic in Table 3.4 above), Hofstede's cultural dimensions are more widely known and extensively used in different studies, especially in business related studies (Baskerville, 2003). On the other hand, Schwartz's framework has received only very limited attention, especially in marketing (Usunier and Lee, 2009). As mentioned, there are some disputes regarding his work and contributions from different scholars; the reasons behind the limited attention vary. Scholars like de Mooij (2005) do not consider Schwartz's work useful in marketing, because his research covers fewer countries (38 countries). The number of countries is less than Hofstede's studies (40 countries, later extended to almost 90 countries). On the other hand, scholars like Steenkamp et al. (1999) consider Schwartz's cultural dimensions useful in marketing and consumer behaviour. The results of research applied Schwartz's framework have supported the validity of the cultural dimensions originally identified by Hofstede (Leung *et al*, 2005; Craig and Douglas, 2006). Despite the differing conclusions from scholars, Hofstede's work remains the dominant culture paradigm (Sivakumar and Nakata, 2001).

3.5.1.5 Cultural Dimensions of House et al. (GLOBE Project)

The Global Leadership and Organizational Behaviour Effectiveness (GLOBE) project is a study of 62 societies (59 countries), which tries to understand the leadership behaviour globally (House *et al.*, 2004). This was not started with completely new ideas, but adopted previous scholars' theories (e.g. Kluckhohn and Strodtbeck, 1961; McClelland, 1961; Hofstede, 1980; Hofstede, 2001), and was primarily based on Hofstede's cultural dimensions. Table 3.5 below shows the nine cultural dimensions concluded from the GLOBE project and highlights the similarities to previous theories.

Table 3.5 GLOBE Project vs. Existing Cultural Dimensions

Cultural Dimensions	Derived from/Similar to
Performance orientation	Need for achievement (McClelland, 1961)
Assertiveness	Masculinity/Femininity (Hofstede, 1980; Hofstede, 2001)
Future Orientation	*Time orientation – past/present/future (Kluckhohn and Strodtbeck, 1961; Trompenaars and Hampden-Turner, 1997) *Confucian Work Dynamism (Hofstede and Bond, 1988) *Long-term orientation (Hofstede, 2001)
Humane Orientation	Human Nature as Good vs. Human Nature as Bad (Kluckhohn and Strodtbeck, 1961)
Institutional Collectivism	Individualism/Collectivism (Hofstede, 1980; Hofstede, 2001)
In-Group Collectivism	Individualism/Collectivism (Hofstede, 1980; Hofstede, 2001)
Gender Egalitarianism	Masculinity/Femininity (Hofstede, 1980; Hofstede, 2001)
Power Distance	Power differential between superiors and subordinates (Hofstede, 1980; Hofstede, 2001; Mulder, 1971)
Uncertainty Avoidance	Uncertainty Avoidance (Hofstede, 1980; Hofstede, 2001)

Source: Bond et al. (2004) ; House et al. (2004); Leung et al. (2005).

From the table above, it is shown that only two cultural dimensions are irrelevant to Hofstede's work; performance orientation and humane orientation. Performance orientation relates to McClelland's (1961) need for achievement, and humane orientation is derived from Kluckhohn and Strodtbeck's (1961) human nature concept (good/evil) (Leung *et al.*, 2005). The GLOBE project contributes to culture studies by refining Hofstede's cultural dimensions and adding two dimensions to try to explain different leadership behaviour. The usefulness of this new model for culture studies remains to be demonstrated (Leung *et al.*, 2005). Therefore, until the model is widely tested and proves its validity, Hofstede's model remains the most popular one for business research. In addition, the GLOBE project's leadership behaviour does not fit in the context of the present research, which aims to target consumers of mobile technology.

The dimensions of culture discussed above are adopted in the extant research, particularly in cross-cultural research. Scholars who adopt these dimensions try to relate variables in a different research context to these cultural dimensions cross-culturally. However, many cross-cultural studies are conducted differently, in that there are different ways to relate these cultural dimensions to different research variables. Lenartowicz and Roth (1999) discuss and conclude four approaches to conducting cultural research via culture assessment, which provides guidance for conducting and evaluating cultural/cross-cultural research. They are to be discussed next.

3.6 Assessment of Culture

Culture assessment, also called an identification of a proper cultural unit, has been discussed in international business and marketing studies (Lenartowicz and Roth, 1999; Soares *et al.,* 2007), since how culture is assessed affects its estimation. Four approaches have been concluded by Lenartowicz and Roth (1999), which are ethnological description, use of proxies (regional affiliation), direct value inference (DVI) and indirect value inference (IVI) (Lenartowicz and Roth, 1999; Soares *et al.,* 2007). They are discussed below.

3.6.1 Ethnological Description

Ethnological description is based on observation and uses qualitative approaches in order to identify and compare cultures (Lenartowicz and Roth, 1999). Therefore, a descriptive appraisal of culture is provided as a result of this approach (Soares, *et al.*, 2007). Cultural studies conducted in a specific country/culture can help marketers relate certain characteristics to certain consumption behaviour, but the results are not meant to be applied to other countries/cultures, as they are culture-specific. Therefore, a study employing this approach can provide a sound theoretical

background for making hypotheses which are related to the culture studied, so they are rarely applied in international research (Lenartowicz and Roth, 1999).

3.6.2 Use of Proxies

The use of proxies distinguishes cultural from sample characteristics, which are normally related to nationality, the place of birth or the country of residence. Therefore, this approach could take a country or a region, and assume that people from that country or region have similar cultural characteristics. In other words, nationality equates culture. This approach is good for conducting comparative studies, as several scholars support the concepts of homogeneity within a nation (e.g. de Mooij, 2005; Schwartz, 1994; Smith and Schwartz, 1997), and heterogeneity between nations (e.g. Bird and Stevens, 2003).

However, this approach lacks measuring scales to test hypothesised relationships (Lenartowicz and Roth, 1999). In addition, criticisms about the within-nation homogeneity, (e.g. dynamics of culture by Appadurai, 1996) and the between-nation heterogeneity, (e.g. convergence theory by de Mooij, 2004) are also raised due to the rapid growing of globalisation resulting in the increased mobility of people (Craig and Douglas, 2006), and the '*increased cross-border flow of three types of entities: goods and services, capital and know-how*' (Govindarajan and Gupta, 2001 p. 4). The argument of employing the use of proxies, equating nations with cultures, is inconclusive.

Nonetheless, this approach can be used to define the unit of culture that is to be selected as a source of culture. Therefore, it can act as the first step in cross-cultural research.

3.6.3 Direct Value Inference (DVI)

DVI directly measures the values of subjects in a sample (in an individual level), and attributes cultural characteristics to the ecological (country) level based on the aggregation of the values (Lenartowicz and Roth, 1999; Soares *et al.,* 2007). The dimensions of culture from different scholars discussed in the previous section are developed based on data from multiple countries via this DVI approach. Therefore, they normally also provide scales used for the direct measure, and show the scores of countries in their empirical studies (de Mooij, 2010). The scales can be employed by other researchers to conduct their cultural assessment via the DVI approach. Also, a country's scores can be indirectly considered to represent one's national culture, by the indirect value inference (IVI) which will be discussed next.

3.6.4 Indirect Value Inference (IVI)

The IVI approach ascribes cultural characteristics based on other studies. For example, one can ascribe cultural dimensions of one country based on Hofstede's nation scores. If this country's nation score in uncertainty avoidance is high, one can assume this country's uncertainty avoidance is high. IVI also refers to benchmarks, as it does not survey members of a group (the sample), but uses secondary data. Therefore, studies employing the IVI approach assume the national cultural characteristics of the relevant countries are consistent with the extant research, based on the nation scores of the cultural dimensions. In other words, those employing the IVI approach study cultures in a country level.

However, the main problem of employing IVI is the matter of sampling (Lenartowicz and Roth, 1999). Lenartowicz and Roth (1999) point out two ways of validating secondary data for culture assessment. The first is to make the samples of a benchmark study large enough to be able to represent the culture; and the second is

to ensure the research sample characteristics are consistent with the benchmark samples. Taking Hofstede's national cultural dimensions, for example, if a study were to employ IVI based on Hofstede's country scores, e.g. taking Taiwan to be a high uncertainty avoidance culture (nation score 69) compared with the UK (nation score 35, lower than Taiwan)(Hofstede *et al.,* 2010), that means that both Hofstede's and the undertaken study should have a sample large enough to represent the culture (nation). Particularly in the undertaken study, if the sample is not large enough, employing the IVI approach would result in an ecological fallacy. Hofstede's sampling has been a controversial issue over time and received critiques from various studies. His sample centred on IBM employees all over the world, meaning the members of the sample held white-collar positions; were under the same corporate culture; and were in a gender biased environment, in this case male-dominated (Orr and Hauser, 2008). Therefore, Hofstede's theory cannot be a good one for the IVI approach, and the undertaken study would also have difficulties in replicating Hofstede's sampling design. As a result, it is shown that difficulties would be encountered when trying to employ IVI to validate one's research into a secondary data (e.g. nation scores). IVI, therefore, is only limited for use in formulating hypotheses even when they are used in conjunction with other approaches to assessment (Lenartowicz and Roth, 1999).

As just mentioned, Lenartowicz and Roth (1999) have indicated the problems/limitations of employing IVI, research adopting the nation scores of any dimension models should always pay attention to the research design (particularly in sampling) and address the limitations. However, this approach is still praised for its ability to form hypotheses (Lenartowicz and Roth, 1999), and is taken as a tool for selecting countries with different cultural dimensions, for comparative studies (e.g. Soares, 2005).

Scholars discuss another criticism about using data from other studies for cultural comparison. The main issue is that the theoretical frameworks (e.g. Hofstede's) that researchers adopt may be culture-bound (i.e. they could only apply to some cultures/countries) because they were developed within particular contexts (Malhotra *et al.,* 1996). Most of the theoretical frameworks, especially for consumer behaviour research, were developed in western societies (Aaker and Maheswaran, 1997; Burton, 2009; Maheswaran and Shavitt, 2000; Patterson and Smith, 2003), as most of the researchers were from Anglo-American background (Burchell and Gilden, 2008). Therefore, cross-cultural research might be restrained by western cultural tradition (Lowe, 2002), and the frameworks developed by mostly western researchers might not be appropriate for cross-cultural comparison in general (Malhotra *et al.,* 1996). To respond to this criticism, researchers test these dimension models in different countries in order to prove their validity especially in an eastern culture context. With regard to Hofstede's cultural dimensions, for example, Yoo et al. (2011) conclude twelve cross-cultural studies which validate Hofstede's five cultural dimensions. Countries included in these studies which are not western culture, are such as Thailand, United Arab Emirates, India and China. These studies prove the external validity of Hofstede's cultural dimensions. But the criticism provides a valuable point for researchers: the importance of validating a theory in the cultures/countries of interest at the beginning of their research. The present research reflected this point and validated the theory under investigation in the UK and Taiwan. It is discussed in 4.7.3.1 *Mixed Methods (p. 102)*.

As none of the culture assessment approaches is entirely without shortcomings, a combination of the various approaches could help to minimise the shortcomings entailed by each approach (Lenartowicz and Roth, 1999; Soares *et al.*, 2007). The

present research evaluated these approaches and decided to combine three of them. This is outlined next.

3.6.5 Culture Assessment in the Present Research

The first approach to culture assessment discussed in the present research, is the use of proxies, also called regional affiliation. As selecting a source of culture for cross-cultural research is the first step, the present research chose the use of proxies to determine the source, and chose the country as the source of culture.

Lenartowicz and Roth (1999) stress that different cultures should be identified or verified before cultural difference is examined. In cross-cultural studies, the countries under investigation should not be chosen out of convenience or opportunity (Buil *et al.*, 2012; Sekaran, 1983). Therefore, IVI was adopted as the second approach to identifying culturally different countries by ascribing the nation scores of cultural dimensions (based on DVI) to the possible countries for the present research.

As mentioned, the present research employed Hofstede's cultural dimensions as the theoretical framework. Based on Hofstede's scores of national culture, UK and Taiwan possessed different and even opposing cultural dimensions, so the two countries were verified to be suitable for a comparative study. Due to the limitation of employing IVI to ascribe cultural characteristics to countries, i.e. studying culture in a country level, the present research chose to study culture in an individual level. Therefore, a DVI approach was also employed.

Employing the DVI approach involves directly measuring values of variables of interest in a sample, and then the results can be inferred to the whole culture – the

whole country, in the present research. Due to the nature of this approach, an existing measure/scale was necessary to test the samples.

There are existing measures for testing Hofstede's cultural dimensions, including Hofstede's own tool – the value survey module (VSM). Some scholars have doubts about using measures developed from an ecological-level (country-level) of analysis, on a micro-level study (Dorfman and Howell, 1988; Yoo *et al.*, 2011). In addition, Hofstede's measures are produced to measure work-related values, which are not suitable in a consumer's context. Thereby, measures for testing Hofstede's cultural dimensions for an individual-level of analysis, and in a consumer's context, were in need. Donthu and Yoo's (1998) CVSCALE for testing Hofstede's cultural dimensions in an individual-level is one of the measures prevalently used by scholars (e.g. Soares, 2005; Reid, 2011). The present research employed Donthu and Yoo's (1998) CVSCALE to conduct the DVI, with the purpose of inferring the results from the sample to the whole nation. The detail of why the CVSCALE was chosen is discussed in 6.4.4 *Adopting the Scale (p. 177)*.

3.7 Summary

This chapter depicts the importance of cross-cultural consumer behaviour research, and the way to conduct such research. This chapter begins by delineating the demand in the insights of market in different cultures and then proceeds to how culture is operationalised. It analyses approaches to conducting cross-cultural research, and the approach for the present research is identified and explained. The mainstream dimensions of culture employed for cross-cultural research are discussed; justification is made for the decision to employ Hofstede's cultural dimensions. How culture is assessed, which may affect the rigours of cross-cultural

research, is illustrated. The chapter concludes by explaining the choice of a combination of cultural assessments for the present research.

Chapter 4.

Methodology

4.1 Introduction

The previous two chapters of literature review provide a rationale for conducting a cross-cultural study of consumers' experience in the use of mobile technology and its effect on consumer loyalty. Following the review, the research can be planned and designed, which is presented in this chapter.

The purpose of this chapter is to outline the planned procedure and process for the present research. In order to provide a guideline to direct the process and the design of the research, the research questions, aim and objectives are addressed.

The chapter is organised as follows. Firstly, methodological issues are addressed that are concerned with cross-cultural research. These issues are given prominence, since they play an important role in the design of the research. Secondly, consideration is given to the research process. The main framework for the research, from its initial formation through to its outcome, is based on the research framework of Saunders et al. (2007, 2009, 2012). Their research framework provides a clear and step-by-step structure for conducting research and, therefore, provides a systematic blueprint for approaching and elaborating the methodology of the present research.

4.2 Cross-Cultural Research Methodological Considerations

Comparability of data is the main issue for cross-cultural research, as the main purpose is to find similarities and differences between different cultures. From the outset, in order to be able to investigate 'comparable' data from different countries, consideration needs to be given to certain widely discussed methodological issues (e.g. Bhalla and Lin, 1987; Chen, 2007; Chen, 2008; Craig and Douglas, 2006; Engelen and Brettel, 2011; Malhotra *et al.*, 1996). The most salient methodological issues in this kind of research are equivalence of constructs and selection of samples (Engelen and Brettel, 2011; Mullen, 1995). Equivalence of constructs relates to two aspects. The first (represented in green in Table 4.1), involves the functional, conceptual and instrument equivalence of constructs. The second (represented in pink in Table 4.1), involves measurement equivalence. The sampling issue is concerned with the selection of cultures to be investigated.

A summary of the types of construct equivalence in cross-cultural research and their application to this research is listed in Table 4.1 below:

Table 4.1 Types of Equivalence Considered for the Present Research

	Type of Equivalence	Definitions of Equivalence	Considered in this Research
			Noted. Mobile phones mainly serve as a communication device in both UK and Taiwan.
			Noted. See 4.2.1 (p. 82).
			Noted. See 4.2.1 (p. 82) and 4.7.3.5.2 (p. 112)
			Noted, see below.
	-		Noted. But not a major concern in the present research. The only unit which might be different is the qualification obtained from each respondent.
	-		Noted. The questionnaire was translated to Chinese. The back translation to English was conducted by a Chinese-English translator. The back translation was checked by an English native speaker.
	-		Noted The equivalence/invariance of the measurement was presented in Chapter 7, *Findings (p. 188)*.

Source: adapted from Bhalla and Lin (1987); Malhotra et al. (1996)

As quantitative research was dominant in this cross-cultural study, all levels of equivalence needed to be established so that quantitative comparisons across cultures could be made (Steenkamp and Baumgartner, 1998). The assurance of all levels of equivalence helps to ensure the reliability and validity of cross-cultural

research (Watkins, 2010). Accordingly, in addition to the brief description in Table 4.1, the four levels of equivalence are addressed in the following section.

4.2.1 Functional, Conceptual and Instrument Equivalence

The functional and conceptual equivalences are concerned with the role and the meaning of the research object (mobile phone), which should be the same within the cultures investigated. The present research investigated the perceptions, behaviour and attitude of participants in regard to the use of mobile phones, so the main function of mobile phones, and the ideas of 'perception, behaviour and attitude', in the UK and Taiwan needed to be equivalent. In order to achieve it, Douglas and Craig (2006) and Watkins (2010) suggest the employment of qualitative research in each culture context, in order to probe potential instrument bias, even though most cross-cultural research is quantitative in nature. The present research decided to initially adopt a qualitative approach, by employing focus groups to validate the concepts and the phenomenon under investigation in the two countries identified for research purposes. This issue is addressed in 4.7.3 Research Methods.

Functional and conceptual equivalence were confirmed by the feedback from focus groups in the UK and Taiwan. It was established that the main (functional) purpose of using mobile phones is to communicate to others, while the interpretation of (conceptual) perceptions, behaviours and attitudes in the UK and Taiwan are taken to be similar.

The instrument equivalence refers to the identical interpretation of the questionnaire items and stimuli across cultures (Malhotra *et al.*, 1996). As the questionnaire items were formed based on the results of the focus groups conducted in both the UK and

Taiwan, the items should be perceived in the same way in both countries. This issue is also addressed in 4.7.3 *Research Methods (p. 102).*

4.2.2 Measurement Equivalence

Measurement equivalence focusses on the design of the data collection instrument. Three equivalence issues, that is, calibration, translational and scalar equivalence, were considered. As noted in Table 4.1, although the three issues were considered only the scalar and translational issue were related to the present research. The two issues are addressed in Chapter 6, *Instrument Development and Data Collection* (translational equivalence) and Chapter 7, *Findings* (scalar equivalence).

The scalar/metric equivalence of the measurement signifies the same coherence of structure in the psychometric properties of data from different cultural groups. This coherence of structure is extended to consideration of variables such as gender, age, education background and so on, so that each respondent of a study should respond to the measurement scales in the same way. The main difficulty of achieving such equivalence is the possibility of response bias, in that people from different cultures may respond differently to surveys on the basis of cultural differences (Mullen, 1995; Watkins, 2010). People from some cultures, for instance, tend to avoid extremes in scoring. Asian respondents (in the present research, Taiwanese) are particularly noted as having a tendency to mild or moderate responses. Hence possible response bias might occur. Therefore, the scalar/metric equivalence of the measurement in the present research among different groups was tested, demonstrated and discussed in 7.5.2 *Assessing Measurement Invariance Across Groups (p. 249)*.

4.2.3 Equivalence Paradox

Given that a key approach in this research is that of comparison, close attention to equivalence issues in cross-cultural research is crucial in order to ensure that any conclusions regarding cultural differences do not arise from measurement and scaling artefacts (Mullen, 1995). Some researchers (e.g. Malhotra *et al.*, 1996; Soares, 2005) have queried this issue, referring to the 'equivalence paradox' as a risky perspective; that is, an attempt to achieve a notion of equivalence in a study may lead to important cultural differences being obscured, or even obliterated, Therefore, although equivalence issues should certainly be addressed, this should be done with awareness of the equivalence paradox issue.

4.2.4 Sample Selection

In cross-cultural studies, the countries under investigation should not be chosen out of convenience or opportunity (Buil *et al.*, 2012). Adler (1983) argues that the selection of countries in cross-cultural research requires theoretical foundation. Therefore, the selection of appropriate cultures to study was a major decision (Engelen and Brettel, 2011). Selecting samples within the selected cultures/countries are equally important. They are discussed in 4.7.2 *Sampling (p. 93).*

4.3 Research Process

As mentioned earlier, the present research has adapted the research framework of Saunders et al. (2007, 2009, 2012). Based on the framework, research starts from conceiving an idea, identifying aims, and determining objectives of the research. Then, based on these aims and objectives, a research design is set out which includes decisions as to how and from whom to collect data, and how the resulting data will be analysed. Other issues are considered in parallel, resulting in a plan for the whole research 'journey' which constitutes the research process.

The focus of the present research was initially driven by the rapid growth of the mobile technology industry in the global marketplace. After a considerable time reviewing and drawing on related literature, the research process evolved into the plan below (Figure 4.1).

Figure 4.1 Research Process of the Present Research

Source: Adapted from Saunders et al. (2009)

Figure 4.1 shows the whole process of the research starting from the initial idea – wish to do research - and then moving on to potential areas of interest and study.

These two parts were discussed in the introduction (Chapter 1). This methodology chapter focusses on the research process after the initial literature review. It starts from the formation of the research question(s) (Figure 4.1), and then continues through to the identification of the aims and objectives, and the discussion of the appropriate research philosophy. The research question(s) and research philosophy are interrelated, as explained later in Figure 4.2. Based on the researcher's research perspective and philosophy, the purpose of the research and the research design were formed to reflect the researcher's beliefs. The lower part of Figure 4.1, within the box shaded dark blue, highlights the whole research design, which includes the choice of research methods, research strategy, time horizon, sampling technique, and then data collection and analysis. In parallel with designing the research, the research ethical issues were considered and dealt with before the empirical research started. Further detail regarding the research process is addressed in the following sections.

4.4 Research Questions, Aim and Objectives

According to the research process in Figure 4.1 (p. 85), the researcher started out by investigating suitable research areas from her particular area of interest, which essentially revolves around consumer experience with the use of mobile technology across two cultures. This focus guided the early literature review which was later expanded to include consumer loyalty so as to make the research model more complete. Within these areas of literature, the researcher formed some nascent queries. :

- Research question 1: Is there a relationship between national culture and perceived paradoxes of mobile technology, and the coping strategies employed?

- Research question 2: Is there a relationship between perceived paradoxes of mobile technology, coping strategy and consumer loyalty?

After the research questions were set, further literature was critically reviewed, before drawing the aims and objectives.

The aim of the study was to explore the influence of culture on the consumer's experience with the paradoxes of mobile technology, and to understand whether consumer experience based on different cultures also has an influence on consumer loyalty. Accordingly, the present research, dominated by a quantitative approach, analysed how consumers of two different cultures perceive and cope with the paradoxes of mobile technology, and their on-going relationships with this technology, in accordance with defined cultural dimensions.

The following are the objectives of the study:

1. To identify the cultural dimensions that may influence the consumer experience of mobile technology use.
2. To investigate UK and Taiwan's cultural dimensions based on a seminal theory from the literature.
3. To produce a model for mapping the relationships between cultural dimensions, perceived paradoxes of mobile technology, coping strategies employed and consumer loyalty in the mobile phone industry.

3.1. To produce a measurement for testing paradoxes of mobile technology and coping strategies.

3.2 To analyse the relationship between cultural dimensions and the experience with the paradoxes of mobile technology, coping strategies and consumer loyalty in those two countries.

4. To evaluate the findings on cultural influence on consumer behaviour in technology, making a theoretical contribution in cultural studies and consumer behaviour, and a practical contribution to practitioners in mobile technology industry.

4.5 Research Philosophy and Approach

4.5.1 The Importance of Understanding Research Philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge (Saunders *et al.*, 2012). In other words, research philosophy affects how knowledge is formed and what type of knowledge is developed. Therefore, it plays an important role at the planning stage of research.

Easterby-Smith et al. (2012) point out three reasons to explain why understanding philosophical issues are crucial. Firstly, this can help to clarify research design, as the findings/results of the research are based on how the researcher designs the study. Secondly, by understanding research philosophy, the researcher can design a research project that works. In other words, it can help to reduce the chance of having to re-design or restart a project. Thirdly, it can help the researcher to know if he/she should create or adapt other research designs that suit his/her own research.

In Figure 4.2, the research process of Saunders et al. (2012) was adapted to explain the process of the present research, as this process provides a very clear structure for conducting research. It also acted as a guideline to stress the importance of the research philosophy played in any research. Figure 4.2 below, depicts the idea.

Figure 4.2 Position of the Research Philosophy in a Research Process

Source: Adapted from Saunders et al. (2012)

Based on the role of research philosophy stated above and in various literature (e.g. Easterby-Smith *et al.*, 2012; Saunders *et al.*, 2012; Schwendinger, 2011), the findings/results/developed knowledge of the research should reflect the researcher's philosophical stance in seeking to answer the specific research question(s). The findings/results/developed knowledge should also answer the research question(s) (Figure 4.2).

Therefore, understanding the researcher's philosophical stance for the present research can help to explain why the research was designed in such a manner. The research philosophy for the present research is delineated below.

4.5.2 The Researcher's Philosophical Stance

Saunders et al. (2012) state three questions that help to understand the research philosophy espoused by a researcher. The three questions stand for three branches of philosophy. The following table summarises the three branches of the philosophy and what they stand for.

Table 4.2 Three Branches of Philosophy

Source: Adapted from Easterby-Smith et al. (2012, p. 18); Saunders et al. (2012, p. 129)

From the above table, ontology is related to the nature of reality, epistemology is related to the way in which acceptable knowledge is discovered, and axiology is related to the role of the researcher's value in the research. The purpose of conducting research is to try to answer the research question(s) raised by the researcher. Therefore, it is the researcher's call to decide how to answer the question(s).

Based on the fundamental polarities in Table 4.2, the researcher chose a positivistic approach on the assumption that the 'object' of the research should be observable. It is true that the main objects investigated in the present research were people's

perceptions, behaviours and attitudes, none of which are totally 'observable'. However, an assumption was held that it is possible to turn unobservable items into measureable ones, making them observable. On top of that, the present research set out to compare phenomena in two cultures, with the intention of making inferences from results generated from the selected samples in each country, and taken to represent individual features of each country. In doing so, the intention was to disseminate the results produced as potentially applicable to other countries. Given these points, the researcher's epistemology fits into positivism.

Given this epistemological stance, it is possible to add further clarification regarding the ontology and axiology adopted for this study. The researcher's viewpoint is that the nature of reality should be investigated objectively. The 'truth' should come from what is there, instead of what is 'thought' to be there i.e. to be interpreted by the researcher. As mentioned, the objects of the research in this study were the perceptions, behaviours and attitudes of participants/respondents, as indicated by means of their reported responses, rather than by means of interpretations on the part of the researcher. This assumption led in turn to another assumption about the researcher's role, which was intended to be value free instead of value bound, and as lying within the positivist frame. Based on this philosophical stance, the present research was designed to adhere to a positivistic approach.

4.6 Research Purpose – Type of Research

From the stated research questions and objectives, the present research sought to investigate the relationships between four variables as identified in Chapter 5, *Conceptual Framework (p. 123):* that is, cultural dimensions, paradoxes of mobile technology, consumers' coping strategies within the paradoxes of mobile technology, and consumers' attitudinal loyalty to mobile technology. The type of research which

accommodates such variables is termed correlational research or correlational study (Tharenou *et al.*, 2007). This means that if two variables are correlated (positively or negatively), the second variable can be predicted from understanding the first variable, and vice versa (Jackson, 2011). Identifying the purpose of the research in relation to such variables is crucial, as it underpins the research design (Tharenou *et al.*, 2007).

4.7 Research Design

Research design can be considered as a framework (Bryman and Bell, 2011), a blueprint (Blumberg *et al.*, 2011) or an overall plan or a structure (Tharenou *et al.*, 2007) that helps to answer the research question(s), and fulfil the aims and objectives of a study. A research design contains research strategy, research methods, sampling techniques, and the time horizon, which indicates the length of the research.

4.7.1 Research Strategy and Time Horizons

The choice of a research strategy can be derived from two aspects – research approach and research purpose. The present research was a correlational study, aiming at establishing relationships between variables – cultural dimensions, consumer perceptions of paradoxes, coping strategies for the paradoxes, and attitudinal loyalty. Also, the present research intended to investigate people's perceptions over a certain period of time. Since this made the research a cross-sectional study, a survey strategy was chosen. Survey strategy is widely employed in correlational studies (Tharenou *et al.*, 2007), and also relates to a deductive research approach which is often employed by cross-sectional studies (Easterby-Smith *et al.*, 2008; Easterby-Smith *et al.*, 2012). Apart from being a

suitable strategy based on research approach and purpose, a few more points explain the choice of survey as a methodological strategy.

First, it is suggested that a survey strategy is good for finding out particular relationships between variables and models (Saunders *et al.*, 2007; Saunders *et al.*, 2009; Saunders *et al.*, 2012). This fits the research purpose of the present research. Second, the primary data the researcher intended to obtain involved perceptions and attitudes, which are unobservable social reality. Some researchers (e.g. Tharenou *et al.*, 2007; Yin, 2009) recognise that a survey strategy approach is useful for measuring such unobservable constructs. Third, a good choice of research strategy also needs to fulfil the researcher's resources for conducting the research. This mainly concerns financial support and time constraints. This was another consideration in adopting the survey strategy in this research – due to the economical nature and ease of data distribution and collection (Tharenou *et al.*, 2007). Fourth, the present research wished to collect a large amount of data in order to generalise the result. The idea of employing a survey was to collect data from a sufficiently large sample.

However, in spite of such benefits, the survey strategy approach has its limitations, which may vary according to the type of data collection instrument. The present research employed a questionnaire to conduct the survey. The limitations of questionnaire methods are addressed in the questionnaire design section, laid out in 4.7.3.5.4 (p. 117).

4.7.2 Sampling

According to the research questions and objectives, the present research set out to explore and understand consumers' experience, consumers' loyalty and their coping

strategies within the paradoxes of technology, using mobile phones as a proxy, in different cultures i.e. the UK and Taiwan. The target audience for such research is every mobile technology user in the two countries. Due to the constraints on available resources i.e. time, money and access, it was deemed impossible to collect data from everybody within this population. As such, sampling was considered an acceptable alternative, in that it is believed that data collected from samples can lead to the making of inferences and conclusions which may then be extended to an entire population (Blumberg *et al.*, 2011).

In 4.2.4 *Sampling Selection (p. 84)*, the selection of countries for comparison is one of the major methodological issues in cross-cultural research. The countries under investigation should not be out of convenience (Buil *et al.*, 2012) or opportunity (Sekaran, 1983). Therefore, the selection of UK and Taiwan for the present research was based on two cultural assessment approaches, which are discussed in 3.6.5 (p. 76). The first was the regional affiliation (it is also referred to 'use of proxies'), and the second one was the indirect value inference (IVI) approach (Lenartowicz and Roth, 1999; Soares *et al.*, 2007). Regional affiliation approach defines culture based on characteristics which reflect certain regions (e.g. nationality or birth place) (Soares *et al.*, 2007). Thereby the present research used nationality (British and Taiwanese) to reflect culture. The second approach is the IVI, which ascribes cultural characteristics based on other studies. The present research ascribed Hofstede's (1980, 2001) national cultural scores to determine that UK and Taiwan had opposite cultural dimensions. Accordingly, selecting UK and Taiwan for culture comparison for the present research was theoretically sound.

Before selecting samples from the two countries, it was necessary to understand what type of sampling technique might fulfil the present research questions and

objectives. At the same time, the sampling had to be feasible under the available resources. The types of sampling technique available for consideration are discussed below.

4.7.2.1 Probability and Non-Probability Sampling

There are different sampling techniques which can be grouped into two broad categories: probability sampling and non-probability sampling. The main differences between these two types are summarised in Table 4.3 below.

Table 4.3 Comparison between Probability Sampling and Non-Probability Sampling

	The chance of a member in the population to be selected	Sampling Frame	Sample Size	Possible sampling error	Statistics inference or generalisability to the population
Probability sampling	Known	Yes	A formula to calculate the sample size (based on the whole population)	minimum	Good for statistical inference
Non-probability sampling	Unknown	No	Depends on the research questions and objectives	Yes (each member has an unequal chance to be selected)	Generalisable, but not on statistical grounds

Source: Bryman and Bell (2011); Saunders et al. (2007)

The present research employed non-probability sampling, and the reasons for employing this technique instead of the other are given below.

In 'probability sampling', each unit or member in the population has a 'known' chance to be chosen as a sample (Bryman and Bell, 2011; Tharenou *et al.*, 2007). Samples selected from the probability sampling technique are considered to be more

representative, and so this type of sampling is also called ‘representative sampling’ (Saunders *et al.*, 2007). When the samples selected are representative, it is more likely that data from such samples will be generalisable to the whole population. The ability to generalise the results is an important issue in terms of the external validity of research (Tharenou *et al.*, 2007).

However, to be able to employ a probability sampling technique, a sampling frame has to be identified (see Table 4.3, p. 95). A sampling frame is a list of members/units/cases which selected from the entire population (Bryman and Bell, 2011). From the sampling frame, the sample size has to be determined based on the whole population – calculated from a formula. That means a certain number of samples should be selected from the whole population. A well-developed formula indicates whether the sample is representative. However, in many types of research, especially marketing and management research, it is difficult to obtain a list of members in any given population. This may be due to access issues or simply because the size of the population is too big. Therefore, in such research, the sampling frame is not able to be determined. Without a sampling frame, the sample size is even more difficult to determine. Under this situation, non-probability sampling is designed as an alternative, with the limitations provided in Table 4.3. The present research was identified as having no sampling frame – the users of mobile phones constitute an enormous population, so it was not possible to either have or have access to the list of members for the whole population i.e. all mobile phone users in the world. Therefore, the present research had to choose the non-probability sampling option. Nonetheless, a non-probability sampling approach is recognised as a suitable approach for cross-cultural studies (sometimes called between-country studies) (Buil *et al.*, 2012; Reynolds *et al.*, 2002).

Once it was determined to employ non-probability sampling, a suitable sampling technique or a combination of techniques were chosen. The present research employed a combination of sampling techniques, which is delineated in the next section.

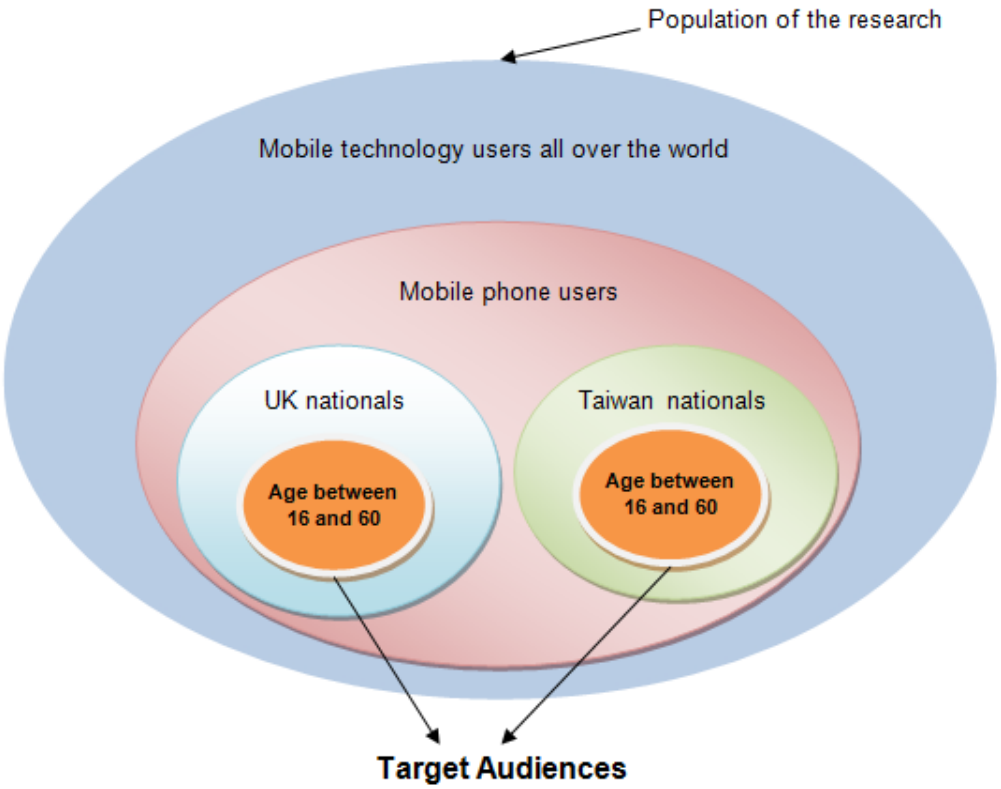
4.7.2.2 Sampling Techniques

There were two stages of sampling in the present research. The first stage involved the selection of the target audience, and the second stage involved the way to reach the target audience.

4.7.2.2.1 Purposive/Judgement Sampling

Purposive/judgement sampling was chosen to select the target audience. Purposive/judgement sampling sets selection criteria which can be used to obtain the samples from the entire population (Blumberg *et al.*, 2011; Saunders *et al.*, 2007; Tharenou *et al.*, 2007). Figure 4.3 shows how to locate the target audience by the purposive/judgement sampling technique for the present research.

Figure 4.3 Purposive/Judgement Sampling of the Present Research



From a consideration of Figure 4.3 above, although the whole population of mobile technology users might potentially be seen as the desired target for such research, in reality such a target was not feasible. Therefore, the present research focussed on mobile phone users in two cultures only. This can be delineated in three steps.

First step: Identify users of mobile technology

As mobile technology contains various types of technology e.g. mobile phones, laptops/tablet PCs with mobile broadband or Wi-Fi enabled software, Bluetooth technology and so forth, the researcher chose mobile phones as a proxy of mobile technology. Mobile phones have acted as a proxy of mobile technology in some other previous studies (e.g. Jarvenpaa *et al.*, 2005; Jarvenpaa and Lang, 2005; Lee *et al.*, 2003). This is because mobile communication is the most important attribute of this technology, and mobile phones are perhaps the most representative example of combining user mobility and device portability (Wesolowski, 2002). Therefore, all the

mobile phone users within the population are the target audience (see Figure 4.3, the pink coloured oval).

Second step: Identify who to compare

As the research questions and objectives of the present research indicated that culture may be a salient factor in influencing behaviour/experience, the present research chose two countries to represent two cultures, in order to compare the difference. As mentioned in 4.2.4 (sample selection, p. 84) the selection of appropriate cultures to compare is crucial. The UK and Taiwan are chosen as they are indicated as having opposite cultural dimensions (Hofstede, 1991; Hofstede, 2001), as discussed in Chapter 3, *An Overview of The Culture Theory (p. 46)*. The choice was also due to the fact that Taiwan is where the researcher is from, and the UK is where the researcher studies. Therefore, as the target audiences were identified, it was envisaged that samples would be selected from mobile phone users from the UK and Taiwan respectively.

Third step: Identify demographic background

Finally, the research questions and objectives did not look for users with a detailed and specific background. The only element required was demographic, to ensure that samples in the research were mature users. Accordingly, the age range was set from 16 to 60.

The steps for identifying the target audiences show why purposive sampling was employed. The sampling technique is to 'frame' the samples within the entire population identified. Although under non-probability sampling it is not possible to obtain a sample frame, setting criteria for selecting samples from the entire population is an alternative for setting a sampling frame – a sampling frame 'without'

a list of members or units of the target audiences. Therefore, in this research the final target audiences needed to possess the following characteristics: aged between 16 and 60, the UK and Taiwan nationals, and mobile phone users, as shown in Figure 4.3.

After identifying the target audiences via purposive/judgement sampling, two further sampling techniques were employed for reaching samples from the two countries: convenience sampling and snowball sampling. A combination of these was believed to help quicken the recruitment of potential participants from the target audiences in the two data collection stages. The reasons for choosing these two sampling techniques are addressed below:

4.7.2.2.2 Convenience Sampling

Convenience sampling is sometimes called ‘accidental’ or ‘haphazard’ sampling (Ghauri and Grønhaug, 2010; Saunders *et al.*, 2007; Tharenou *et al.*, 2007). This sampling technique is based on what is convenient to the researcher (based on the available resources) – what (who) is available, and who is accessible by the researcher. It is said that this sampling technique is an easy and cheap way to recruit participants (Blumberg *et al.*, 2011), and it also possesses the advantage of obtaining data more quickly. These were all reasons why the present research chose such a technique.

By employing this sampling technique, the researcher recruited samples from what was available to her. Recruiting people known by the researcher as qualifying for the sampling criteria was the first step in terms of the accessibility. The way to approach potential samples was another key consideration. The most convenient and fast approach was thought to be through emails. However, one of the drawbacks of

employing this sampling approach relates to the reliability of such samples, (Blumberg *et al.*, 2011), in that they may be available but not representative (Saunders *et al.*, 2007). This is addressed at the end of this section.

4.7.2.2.3 Snowball Sampling

The second step of recruiting participants was to employ a snowball sampling technique. Snowball sampling is a form of convenience sampling, the central idea being to start from a small number of participants and then progressively accumulate others by networking contacts (Bryman and Bell, 2011). The better the initial contact by the researcher to the basic sample, the more likely this will lead to the creation of a larger sample size.

Thus, the researcher sent out emails to immediate acquaintances, at the same time asking them to forward or pass on the message/email to people they knew, and so forth. By employing this sampling technique, the number of participants was multiplied, which increased the number of participants in a short period of time.

By combining convenience sampling and snowball sampling, the researcher aimed to gain quicker access to potential participants, and to obtain sufficient data for the research with minimum effort. The hands-on aspect of this sampling process is discussed in the data collection section in 6.2.2 (p. 160) for the focus groups and 6.5 (p. 182) for the questionnaire data collection.

After laying out the rationale for the sampling techniques used, the following sections explain the choice of research methods for conducting data collection and analysis.

4.7.3 Research Methods

4.7.3.1 Mixed Methods

Research methods are rules and procedures that govern the way to collect and analyse data (Ghauri and Grønhaug, 2010). As the research design reflects the researcher's philosophical position, the data collection and analysis techniques of the present research followed a quantitative approach. Therefore, a questionnaire was planned to act as the main data collection instrument, enabling the collection of data from a large number of participants.

However, whatever the instrument involved, to produce a good piece of research it is necessary to consider two important issues. First, the existing theory must be validated and tested as good for purpose, rather than being blindly adopted. In fact, the theory of paradoxes of mobile technology was first investigated and released in 2005, based on results of research conducted in four cities in four countries (Finland, Japan, Hong Kong and USA). To adopt such a theory to this study, it was crucial to know if a) the paradoxes still existed seven years after the initial research, and b) they still existed specifically in the two countries under investigation (the UK and Taiwan). On the basis of such considerations, a good measurement (questionnaire) might then be produced.

A design of a two-stage study in the present research was to address the two issues mentioned above. A focus group was used in order to collect data in the first stage. This formed the preliminary research and was designed to detect potential problems from conducting the research in two cultures (Douglas and Craig, 2006). The second stage of the study was to use a questionnaire for the main data collection. This was completed after the analysis of the first stage. As the focus group involved a qualitative approach and the questionnaire involved a quantitative approach, it is

possible to state that the present research employs mixed methods. The two stages of data collection were planned as in Figure 4.4 below.

Figure 4.4 Data Collection and Analysis Procedure – A Mixed-Method Approach

Source: Adapted from First (2009)

The detail of the choice of the two stages of data collection and analysis is delineated in the following sections. However, it is important first to clarify in what ways the methods employed reflect the researcher's philosophical position.

4.7.3.2 Mixed Methods and Philosophical Stance

There are different types of mixed-method which reflect different philosophical stances. Easterby-Smith et al. (2012) propose three different designs of mixed-method, which represent different research philosophies. They are summarised in Table 4.4 below:

Table 4.4 Different Designs of Mixed Methods

Source: Easterby-Smith et al. (2012); Saunders et al. (2012)

From the table above, the mixed-method employed in this research fits the 'handmaid' design. A recap of the data collection and analysis for this research illustrates the point - focus groups were designed to validate and gather items (in Chapter 6, *Instrument Development and Data Collection,* called 'statements') for the development of the main data collection instrument (questionnaire). The data analysis for each method was independent from the other, and the final results of the research were based on the data collected by a large-scale survey via a questionnaire. Therefore, using a simple mixed-method approach, the researcher was still able to stand on the positivistic side of the supposed philosophical divide.

4.7.3.3 Critiques of Employing Mixed Methods

There are a few major critiques about employing mixed methods in a study. The main critique is concerned with the researcher's philosophical stance, which has been addressed in 4.7.3.2 *Mixed Methods and Philosophical Stance* (p. 104).

Another concern relates to operationalisation. The feasibility of operating data collection and analysis using both quantitative and qualitative methods is sometimes questioned. In response, a pragmatic researcher, or a researcher conducting both quantitative and qualitative research, should firstly have the abilities and skills to conduct both quantitative and qualitative data collection and analysis. Some scholars (e.g. Easterby-Smith *et al.*, 2012; Teddlie and Tashakkori, 2012) consider this as a concern, as the researchers might have '*a minimum competency level*' in both methods (p. 777). That means that the research quality might be doubly at risk if the researchers' proficiency in both methods proved to be questionable, for instance if insufficient researcher training had been offered in both methods before or during the research.

To respond to this critique, in preparing for this research, training for both quantitative and qualitative data collection and analysis techniques were given in the researcher's one-year master's course in research methods in business (MRes). The researcher also had hands-on experience in designing questionnaires and analysing quantitative data when conducting her MRes thesis. Also, On top of this, the data collection and analysis for the present research was supervised by two experienced supervisors. This strongly suggests that the quality of the research was under control throughout the process.

To sum up, the present research recognises the possible challenges and critiques which may arise from employing mixed methods. However such challenges were not of great concern for the present research, as the major issues were recognised and a justification was offered of the approaches taken.

In the following sections, the two stages of data collection and analysis are discussed.

4.7.3.4 Qualitative Data Collection and Analysis

The first stage of data collection was meant to validate the existing theory – the eight paradoxes of mobile technology. The results of the analysis were drawn up in Chapter 6: *Instrument Development and Data Collection*. In addition, it was explained that one of the purposes of collecting statements of participants was to identify how they described the paradoxes they perceived – what words they used, what scenarios they had and so forth. These statements served to inform the next stage of data collection – the questionnaire. As perceptions and attitudes were unobservable constructs, the questionnaire contained statements for participants to rate how strongly they agreed or disagreed with them.

After understanding the purpose of collecting qualitative data in the first stage of the research, the researcher chose focus groups as the data collection instrument. The detail is discussed below.

4.7.3.4.1 Focus Groups as the Data Collection Instrument

A focus group is not just getting a bunch of people to talk. A focus group is a special type of group in terms of purpose, size, composition and procedures……. (Krueger and Casey, 2009, p. 2).

From the above statement, it can be stated that focus groups involve people with certain prescribed characteristics that, in discussing a focussed topic, normally produce qualitative data (Krueger and Casey, 2009). In getting a group of people to talk, with some particular purpose, focus groups are good for gathering information, and for exploring how people feel and think about particular issues or topics (Krueger and Casey, 2009). Focus group discussions can also stimulate new ideas and concepts (Stewart and Shamdasani, 1990).

Although interviews (structured, semi-structured or unstructured) can also be used to obtain people's thoughts and feelings, focus groups are relatively time-saving, flexible, and inexpensive (Ghauri and Grønhaug, 2010), because more data (from more people) can be collected by this method than by using one-on-one interviews within the same period of time. These focus-group advantages fitted the researcher's needs as to resource constraints. In addition, apart from being more time-consuming, one-on-one interviews embody a risk of an interviewer influencing an interviewee, even unintentionally (Krueger, 1994; Krueger and Casey, 2009). Avoiding such uncertainties relates to the researcher's philosophical stance as mentioned earlier.

Focus groups are a particularly appropriate procedure to use when the goal is to explain how people regard an experience, idea or event. The purpose of employing the focus groups in the present research was to generate 'questionnaire items' (called 'statements' hereafter), an approach recommended by Churchill (1979); to draw conclusions or statements on their situation from consumers; and see whether these might fit within the eight paradoxes as suggested by Jarvenpaa and Lang (2005). Such focus groups also promised to highlight whether any new paradox might emerge, or any other new findings that could be included in the present

research. Therefore, the use of focus groups seemed to offer an opportunity for new elements to emerge that might be added to the present research, and hence make a new contribution to knowledge.

After deciding to employ focus groups as the data collection instrument for the first stage study, two types of focus groups were considered. One was the conventional face-to-face (FTF) focus group, which is conducted by one or more facilitators, with at least six participants in a place at the same time. The FTF focus groups are also called ‘offline focus groups’, in order to distinguish from ‘online’ focus groups.

Online focus groups, empowered by technology, are conducted via the Internet. In this medium, each participant can be anywhere in the world, and meet each other at the same time, online. This can solve any location problem, because participants do not need to be in the same place at a particular time. Online focus groups can be operated via real-time facilitators e.g. MSN, Skype (overall, they are called ‘Messengers’ here). In this approach, participants have to log on to the Messengers and ‘talk’ to each other or ‘discuss’ issues with each other by typing/writing.

Although many people use Messengers to talk also via voice, it is equally common that they may ‘talk’ to people on a text-basis by writing and responding immediately in real-time. Using this way to conduct data collection is very efficient as the data are recorded in a written form saved in the computer. Accordingly, there is no need to transcribe the discussion, as most Messengers have the function to record computer-based conversations simultaneously.

The main drawback of using this data collection technique is lack of participant interaction. From the researcher’s experience in conducting online focus groups,

participants tend to be busy answering the facilitator's questions (also in a written form) most of the time. This leaves them little time to check or 'read' other participants' comments or opinions. There is, therefore, the risk of losing group dynamic, which is an important aspect of focus groups. The extant research conducted by Reid and Reid (2005) also confirms such drawbacks. Remarkably however, their research also shows that the number of new ideas or answers generated from online focus groups is no smaller than that generated by the conventional FTF method, as long as extra time is granted. That means that, although the interaction between group members can be weak, the number of ideas generated is similar to that in FTF focus groups. Therefore, the only main difference in execution of data collection would be that extra time is planned into running online focus groups in order to achieve a satisfactory result.

Each original planned focus group session in Reid and Reid's research was for one hour, which was considered a reasonable time commitment for most people. For that reason in the present research, an hour was also planned, as most of the potential participants preferred not to participate more than an hour.

Based on the researcher's experience in conducting focus groups both online and offline, the advantages and disadvantages for both types of focus groups are outlined in Table 4.5 (p. 110), and the researcher also presented and discussed these issues in some research seminars.

Table 4.5 Comparison of Offline (FTF)/Online Focus Group

	(Relative) Advantages	Concerns (relative disadvantages)
Offline (FTF)	• **More interaction** between group members. • **Facilities** – one or two reliable digital recorders will do. **Assistance –** it can be conducted by one person. • **More control** – the facilitator has more control over participants**.**	• **Transcription** – **need time and/or money** to transcribe the recordings. • **A suitable venue needed -** Need to look for suitable venue (location, convenience) and **refreshment (incentive)** may be required. • **Participants' familiarity** – participants might feel uncomfortable to talk as they might not be familiar with other participants. • **Difficult to get people to gather** at a particular time and place.
Online	• **Transcription – Immediate**, just need to print it out. • **No special venue needed.** Participants who are willing to participate should have the facilities required. They could be in anywhere in the world. • **Participants' anonymity** – that would help to increase the public self-disclosure (Reid and Reid, 2005). Participants are more willing to share information when they know what they say is anonymous. • **Easier to get people together** as no need to be at the same place.	• **Less interaction** between group members, most participants are busy in 'answering' the questions from the facilitator. • **Vulnerability in data protection** – anyone who participates in the discussion can obtain the data (just to print it out). • **Facilities and skills needed** – the facilitator needs the right facilities to enable the online communication, and needs to have skills and experience to conduct it. • **Assistance needed** – one or two more people to help to monitor the process and conversations, as many conversations are going on at the same time. • **Less control** – when someone is not engaging in the discussion, they might be doing something else, but the facilitator cannot know.

Table 4.5 (above) does not point out which focus group type is better than the other. Which way to conduct focus groups for best results is mainly based on researchers' judgement from available resources and other considerations, rather than any fixed view of what is 'right' or 'wrong'. In short, group dynamics and interactions between group members were considered important in this study by the researcher. Also, as mentioned earlier, because potential participants preferred spending less time on the process, online focus groups were not chosen for data collection purposes.

Accordingly, the FTF focus groups were conducted. The empirical evidence from the focus groups in the present research is given in 6.3 *Focus Group Data Analysis* (p. 163).

4.7.3.4.2 Data Analysis

The data analysis was planned to be conducted via a pattern match method (Trochim, 1985; Trochim, 1989). It was aimed to match themes from the focus groups' data with the themes from Jarvenpaa and Lang's (2005) eight paradoxes. Emergent new themes from the data could be examined as potential new paradoxes. The detail of the data analysis of the focus groups is delineated in Chapter 6: *Instrument Development and Data Collection.*

4.7.3.5 Quantitative Data Collection and Analysis

The questionnaire was the second stage data collection instrument. The purpose of employing this instrument was to collect quantitative data on a large scale. The reasons for choosing a questionnaire as instrument for collecting the data for the main analysis, and types of data analysis deployed, are discussed below.

4.7.3.5.1 Questionnaire as the Data Collection Instrument

Opinions, behaviours and attributes are the three variables considered to be collectable through questionnaires (Dillman, 2000). These are the types of data the researcher intended to collect, namely perceptions, coping strategies (behaviour), attitudes and intentions (opinion), and the demographic constructs of nationalities, gender and age (attributes). The questionnaire for the present research is included in this thesis as Appendix VII and VIII (Chinese version).

Apart from the suitability of employing a questionnaire as the instrument for the primary data collection, there are some important elements to be noted further. As outlined these elements seem further to suggest that using a self-administered Web-based questionnaire was truly an ideal technique for the present research.

Firstly, a questionnaire is highly structured, with pre-set standardised questions (Tharenou *et al*., 2007), allowing confident interpretation of the data (Robson, 2002; Saunders *et al.*, 2007; Saunders *et al.*, 2012). It also makes data analysis more straightforward, and time-saving. Secondly, it allows respondents to be remote. Therefore, there is no geographical boundary as long as the respondents can be reached by post or Internet (Walliman and Baiche, 2001). Due to time constraints of the present research, the researcher chose to use a Web-based questionnaire which reached more people via e-mails in a short period of time. Thirdly, as is generally believed, this kind of questionnaire proved more efficient and less costly within the available resource i.e. money and time, than other data collection instruments. As this research involved a one-person (researcher only) job for the whole data collection, using a Web-based questionnaire required less person-power to conduct data collection, while yet gathering a large amount of data in a short period of time (Nardi, 2008). Finally, a questionnaire is advantageous in allowing respondents to ponder their answers. When respondents fill in a questionnaire, they can do so at their own pace and they do not need to give responses immediately. This could lead to more accurate and reliable information (Walliman and Baiche, 2001). Such were the reasons for employing a Web-based questionnaire in the present research.

4.7.3.5.2 Design of the Questionnaire

There were four main theories which needed to be tested in the present research, so that each of the theories was given a scale in this questionnaire. As paradoxes of

mobile technology and coping strategy were not found to have satisfactory existing scales, those two scales had to be developed from scratch for the study. The other two scales were adopted and adapted respectively for testing from Hofstede's model of cultural dimensions and attitudinal loyalty.

The development of scales measuring the paradoxes of mobile technology and coping strategy followed Churchill's (1979) procedure as detailed in Figure 4.5 below. The procedure provides a clear instruction and guidance to produce good measures.

Figure 4.5 Suggested and Actual Procedure for Developing Measures in this Research

Source: Adapted from Churchill (1979)

The present research took Figure 4.5 as a framework to develop the two scales. In Figure 4.5, the black arrows are the steps suggested by Churchill (1979). The blue arrows are the steps taken by the researcher for developing the scales. Both of the routes took eight steps to complete the development of good measures, although as can be seen there is a slight difference between them. The route of the present research is outlined below with a commentary on the differences compared to Churchill's route (1979).

The present research started by specifying the constructs (Step 1). Then, a literature search was carried out and focus groups were employed, to serve as means of generating a sample of items (Step 2). Due to the time constraints of the research, the sample of items needed to be purified before collecting data. Therefore, Step 3 was skipped. Q-methodology was employed to purify the items (Step 4A). A Web-based questionnaire was designed to collect data (Step 5). After the data collection, another measure of purification (Step 4B) was conducted by performing exploratory factor analysis (EFA). The detail of the steps used in the present research is covered in Chapter 6: *Instrument Development and Data Collection.*

Step 6 and 7 tested the reliability and validity of the measures developed. Instrument reliability can be defined as the degree to which instrument measures have internal consistency, and can be interpreted to different situations consistently. Instrument validity can be defined as the degree to which the instrument measures what it intends to measure (Field, 2009). Without obtaining a credible degree of reliability and validity, the findings will not be credible. Therefore, they have to be tested before the data are analysed.

The purified data are normally tested by Cronbach's alpha statistic to assess reliability. The reliability issue here can also reflect the instrument equivalence in Table 4.1. However, Cronbach's alpha statistic was only checked in the EFA. When the analysis was moved to the confirmatory factor analysis (CFA), the composite reliability (CR) test from Fornell and Larcker (1981) was employed. It was suggested that Cronbach's alpha should not be used as an item selection tool in the CFA model, as it assumed a tau-equivalence i.e. factor loadings are equal (Alwin and Jackson, 1981). Since in most structural equation models, a lack of tau-equivalence is evidenced (Bacon *et al.*, 1995), Cronbach's alpha was, therefore, not employed in the CFA/SEM model. The detail of the reliability test using Cronbach's alpha (in EFA) and the CR (in CFA) is presented in Chapter 7, *Findings*.

As regards testing for validity, it has been observed that different types of validity exist, which can be assessed at different stages of data collection. These are face validity, content validity, construct validity and predictive validity. The following are based on Kerlinger and Lee (2007).

- **Face validity** addresses whether the instrument looks valid or not.
- **Content validity** addresses whether the items cover all the possible content of that area.
- **Construct validity** addresses the relevance of the items to the constructs being measured (Malhotra, 2010). This can further be broken down into **convergence validity and discriminant validity**. Convergence validity means that items for testing a construct should converge on that construct, whilst discriminant validity tests whether items which are meant to test different constructs show that they are unrelated to one another.

- **Predictive validity** addresses the relevance of the aptitude measures and outcome (Kerlinger and Lee, 2007). That is, whether the measurement scales of the present research can truly predict the outcome.

To verify the face validity and content validity in this study, Step 4A - Q-methodology was used to increase the face validity and content validity. Face validity is considered to be a subjective way of determining validity. Q-methodology helped to capture the subjectivity and systematically present a higher degree of validity. As regards the content validity, it is known that it is not possible to include all the possible items to test one idea, but that it is possible to use items which are ‘’*judged for their presumed relevance to the property being measured”* (Kerlinger and Lee, 2007, p. 667-668). The results from the focus groups (Step 2) helped to obtain a full range of scenarios (items) for each paradox, and all items were examined for their relevance to the topic by employing Q-methodology. As mentioned, the detail of employing Q-methodology and focus groups to increase content validity is addressed in Chapter 6, *Instrument Development and Data Collection*.

The method suggested by Churchill to assess the validity of the measures involved the Multitrait-Multimethod Matrix (MTMM), was developed by Campbell and Fiske (1959) (Step 7). MTMM focusses on assessing construct validity i.e. convergence and discriminant validity in multi methods. The present research employed SEM (CFA plus structural model testing) as the data analysis tool, with convergent validity and discriminant validity being the requirements to confirm the model (based on the model fit). These, therefore, were checked in the CFA model before further data analysis was undertaken. The detailed testing of convergence and discriminant validity for Step 7, and the data analysis for Step 8 served to confirm the robustness of the developed instrument, as presented in Chapter 7, *Findings (p. 188)*.

The above steps ensured the production of a good measure for data collection, following Churchill's recommendation. The present research also adopted and adapted existing scales for two theories, and the reliability and validity measures for the existing scales, which were also needed to fulfil the basic requirements. As discussed above, the validity and reliability for the two scales were assessed after the data were collected. These are also presented in Chapter 7, *Findings*.

4.7.3.5.3 Distribution of the Questionnaire

As the questionnaire was designed to be self-administered and Web-based, the researcher did not need to be in direct contact with the respondents when they responded to it. Also due to ethical considerations, it was considered that any potential respondent who was approached by the researcher would know the researcher. Accordingly, it was decided to distribute the questionnaire to the target audience/potential respondents via emails. That was also thought to be a fast way to distribute the questionnaire. The questionnaire could be sent to many people in a short period of time. In other words, a larger target audience could be reached with little effort and time.

4.7.3.5.4 The Limitations of Employing a Web-Based Questionnaire

Employing a questionnaire as the data collection instrument has some limitations, and employing a Web-based one also has some. However, the limitations were considered in advance prior to employing the technique.

The main drawback of a questionnaire is the limited numbers of questions that can be included. The length of a questionnaire determines the time it takes to complete it. In general, the longer the time required to complete, the lower the response rate.

Therefore, a questionnaire may not be able to cover everything that a researcher desires. However, if a researcher feels that is necessary to cover many questions, generating a lengthy questionnaire, then the response rate may be low. The questionnaire for the present research contained 97 questions to cover all constructs, so it was considered to be a long questionnaire. Accordingly, it was expected to take a longer time to complete the data collection. In reality, it can be seen from the results of the online data collection that the drop-out rate of filling in the questionnaire was 21.92% (139 out of 634). That means one out of five potential participants quit in the middle of filling in the questionnaire. The data collection lasted for four months. The details of the data collection and analysis are discussed in 6.5 (p. 182) and 7.4 (p. 194) respectively.

As regards a Web-based questionnaire, the first drawback is the reachability to the target audience. This is associated with one of the limitations of non-probability sampling (see Table 4.3, p. 95). Receiving a questionnaire and filling it online from a computer limits the questionnaire to people who have computers and who also have Internet access. This means that each member of the target audience has an unequal chance to be reached. This is considered as a sampling error (Saunders *et al*, 2007), reckoned as one of the limitations of the non-probability sampling. Given these limitations, the reasons for employing non-probability sampling were addressed and justified in 4.7.2.1 (p. 95).

4.7.3.5.5 Data Analysis

As mentioned earlier, the quantitative data formed the central part of the main analysis. The analysis was conducted based on the research questions and hypotheses. The present research used SPSS software (version 21) and AMOS (version 21) for the structural equation modelling (SEM) to conduct different types of

data analyses to test research hypotheses and answer the research questions. The types of analyses are addressed below.

Descriptive Analysis

The first type of analysis used was descriptive analysis, mainly showing the demographic information of the respondents. The descriptive data included: the number of participants from the UK and Taiwan, the length of time using mobile phones, gender, age groups and educational background. The total number of respondents was 510, 301 from Taiwan and 209 from the UK.

The data were run by descriptive analysis in SPSS. Pie charts and histograms were used to present the results. The detail of the descriptive analysis is presented and discussed in 7.2 (p. 188).

Factor Analysis

The second type of analysis was factor analysis. Watkins (2010) stresses the importance of the factor invariance between cultures investigated, and points out that factor analysis is the pervasive method for the purpose. Constructs having the same factor structure in different cultures mean that they should have the same internal structure in each culture investigated (Steenkamp and Baumgartner, 1998; Vandenberg and Lance, 2000; Watkins, 2010). Accordingly, factor analysis is essential for quantitative cross-cultural research.

Excluding the demographic questions, there were four scales containing 91 statements in the questionnaire. Factor analysis was used as a tool to define the underlying structure among these statements developed by the researcher, as well as those adopted and adapted from the extant research. The factor structures of the

adapted and adopted scales needed to be examined as the former was different from the original scale, and the latter was developed and tested in a different context and with different samples. The detail of what elements were developed, adopted and adapted is discussed in Chapter 6, *Instrument Development and Data Collection (p. 158).*

There exist two types of factor analysis, used for different purposes. One is Exploratory Factor Analysis (EFA) and the other is Confirmatory Factor Analysis (CFA). EFA, as the name stands, is to find the structure among a set of variables without setting up any priori constraints on the estimation of the number of the factors extracted. CFA, on the other hand, is to be used when there is a precise number of factors to be extracted (Hair *et al.*, 2010). The present research employed CFA to confirm the factor structure hypothesised by the theories. EFA was performed when the factor structure for present research was not confirmed by the CFA tests. Once the new factor structure was confirmed by the EFA, a CFA test was performed again, as the first step of structural equation modelling (SEM).

Two types of EFA are widely used, based on different purposes of analysis. They are component factor analysis and common factor analysis. According to the criteria set out by Hair et al. (2010), component factor analysis proved to be an appropriate analysis for the present research because it fitted the purposes of data reduction instead of identifying the latent dimensions, compared to common factor analysis. The detail of the EFA of the present research is addressed from 7.4.3.2.1 (p. 204) to 7.4.3.4 (p. 216).

After performing EFA in each scale, a clear factor structure of each scale was ready for the next step of analysis - confirming the measurement model by confirmatory

factor analysis (CFA) followed by testing the structural model. These two parts of analysis are subject to structural equation modelling (SEM).

Structural Equations Modelling (SEM)

SEM is a statistical technique used to perform multivariate analysis. It can perform a better, powerful multivariate analysis compared with other multivariate statistics tools. In essence, it combines several multivariate analyses, which are factor analysis, path analysis and multiple regressions (Hair *et al.,* 2010). It allows a set of relationships between one or more independent variables and one or more dependent variables to be tested simultaneously (Tabachnick and Fidell, 2007). Its ability to estimate unobserved (latent) constructs is evidenced, by allowing measures to be associated with a latent construct (Hair *et al.,* 2010). In other words, it allows latent constructs to be predicted by multiple measures (items), and the relationships between those latent constructs can be tested. By considering the measurement errors in each measure and construct, its ability to produce unbiased estimates and results is one of its favoured advantages (Weston and Gore, 2006). Therefore, SEM was considered as the ideal tool to help to answer the research questions.

Sample size is important when conducting an analysis in SEM, as the estimated correlations between constructs can be considered more reliable when the sample size is large enough. (Kenny and McCoach, 2003) suggests a minimum size of 200, and Tabachnick and Fidell (2007) also consider a size of 200 is fair. Accordingly, the present research intended to have at least 200 respondents from each country.

SEM was used for two purposes in this study. First, it was used to confirm the measuring model. CFA was used to test the construct validity as well as to confirm whether the hypothesised model fitted the extant research. Second, it was used to

evaluate the structural model, and to evaluate whether hypothesised relationships existed between constructs. By evaluating the structural model, the hypotheses were tested and the results of the analysis were presented. The hypothesis testing is discussed in 7.4.5 (p. 228).

4.8 Summary

This chapter delineates the research methodology for the present research. It starts by depicting special methodological considerations for cross-cultural research, and providing responses to such considerations. The research process, based on a given framework, is also presented. The aims and objectives for the research are addressed, followed by an outline of the researcher's underpinning philosophical stance, which influences the research design. The research design, which includes the choice of research strategy, time horizon, sampling techniques and research methods, is delineated. A mixed-method is designed to include both a qualitative and a quantitative approach to data collection and analysis, although the present research is quantitative dominant. An outline of the procedures of data collection and analysis for the both methods is drawn.

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Chapter 5.

Conceptual Framework

5.1 Introduction

The previous chapter, *Methodology*, has delineated the aim and objectives, and the design of the present research. The rationale of employing specific techniques for the present research has also been addressed. The present chapter delineates the development of the conceptual framework for the present study.

Following on from the review of the extant and relevant literature given in chapters Two and Three, this chapter moves on to identify the variables under investigation, which are cultural dimensions, perceptions of paradoxes of mobile technology, coping strategies and consumer loyalty.

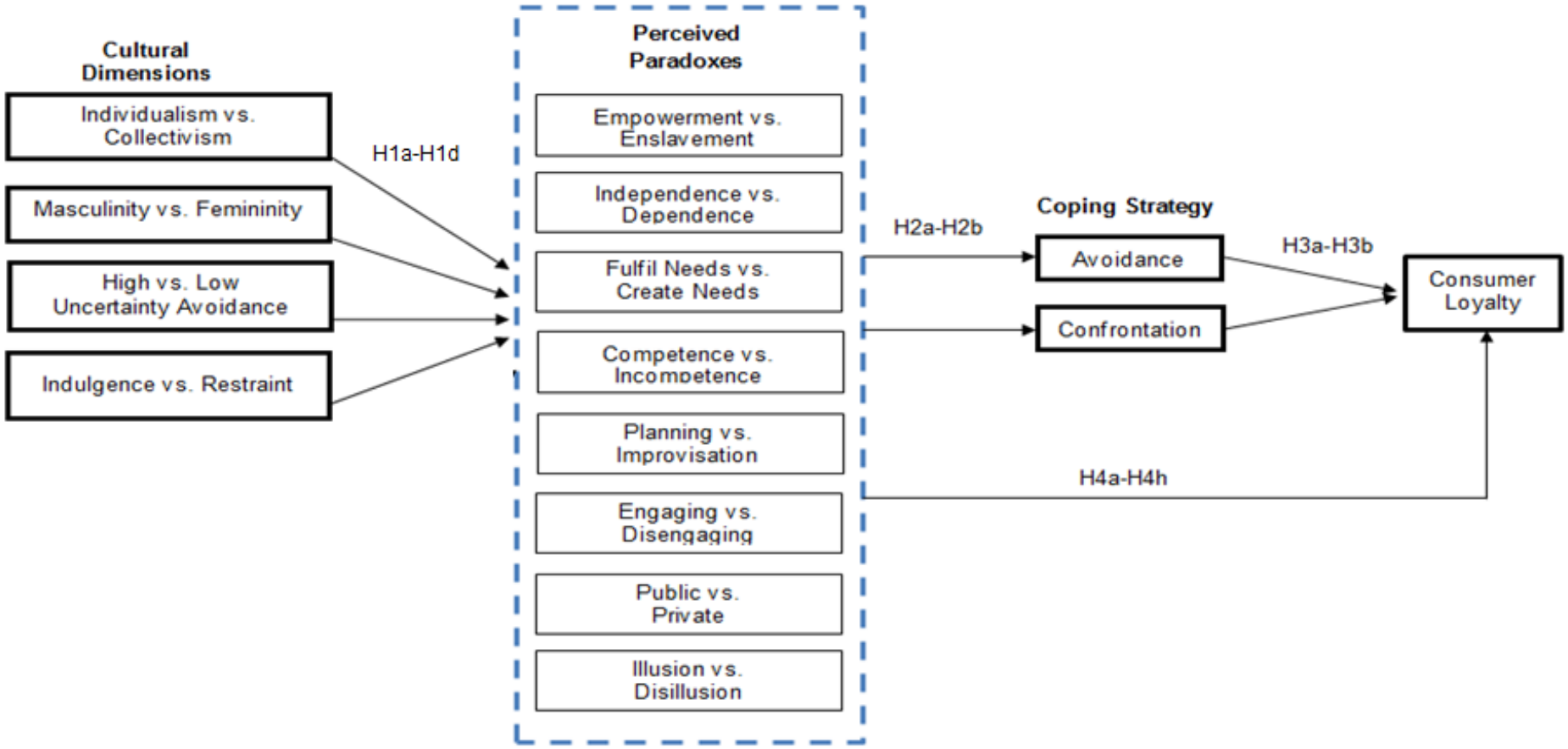
As the present research uses Structural Equation Modelling (SEM), it is first of all essential to outline the measurement and structural models used in this approach. The structural model is used to delineate the relationships between the identified variables. It has been established with reference to theories identified in the extant literature and serves as the basis for the conceptual framework, allowing relationships to be drawn between given theories and the formation of hypotheses. In order to operationalise the variables in the conceptual framework, clear definitions of the paradoxes and coping strategies need to be firmly established. Therefore, the conceptualisation and operationalisation of the paradoxes and coping strategies are also discussed in this chapter. The measurement model, which is applied once the

structural model has been established, is used in order to identify and confirm the items of measurement. However, a discussion of the items of measurement will be presented later in Chapter 6 *Instrument Development and Data Collection (p. 158)*.

5.2 The Research Model

Figure 5.1 depicts the variables under investigation and the relationships between them.

Figure 5.1 Research Model



An Independent Variable - Culture Dimensions

As mentioned in Chapter 3, *An Overview of The Culture Theory (p. 46),* culture tends to be shared by people who live together within a region or nation. That is, it is likely that people who are from the same place, region or country will possess similar cultural characteristics. By extension, rooted in their common culture, such people may have similar perceptions, experience and behaviour towards certain things. In other words, people's behaviour and perceptions may be influenced by characteristics inherent in the culture in which they live. As suggested from the extant literature, cultural dimensions have proven to have impact on consumers' behaviour in the use of technological products (e.g. Ishii and Wu, 2006), and partially account for individuals' characteristics. Therefore, cultural dimensions serve as an independent variable in the present research.

Dependent and Independent Variables - Perceived Paradoxes of Technology

As laid out in Chapter 4, *Methodology (p. 79)*, the present research wishes to evaluate culture's influence on consumers' perceptions of paradoxes in mobile technology. The perceived paradoxes are considered to be the dependent variable to the independent variable, cultural dimensions. In addition, the present research wishes to understand if the perceived paradoxes would affect consumers' loyalty in their continuous use of mobile technology. The perceived paradoxes become, therefore, the independent variable to consumer loyalty. As a result, the perceived paradoxes of mobile technology are a dependent variable as well as an independent variable in the present research.

Mediator - Coping Strategies

Coping strategies may be defined as a behavioural and/or psychological reaction adopted by an individual in order to deal with the paradoxical impact of an event,

which has been perceived in such a way as to provoke ambivalence and mixed emotions (Johnson *et al.*, 2008; Mick and Fournier, 1998). The two coping strategies most commonly adopted when people perceive an event paradoxically, or ambivalently, are the avoidance strategy and the confrontation strategy.

A Dependent Variable - Consumer Loyalty

Consumer loyalty serves as a dependent variable in the present research. Attitudinal loyalty is conceptualised as consumer loyalty. In the present research context, with its focus on mobile technology, consumer loyalty can be measured by evaluating the extent of consumers' intentions to continue using mobile technology, as attitudinal loyalty consists of repurchase intentions and positive word-of-mouth intentions, encouraging others to purchase/use the products/services (Jaiswal and Niraj, 2011). In order to measure consumer intention to continue using the same products, some studies have used a criterion of 'continuance intention' to replace behavioural intention (e.g. Bhattacherjee, 2001; Roca *et al.*, 2006). Regardless of different emphases, the term consumer loyalty is used in the most common sense in which it is often presented, that is as an on-going relationship with a product or brand (Mascarenhas *et al.*, 2006).

On the basis of the conceptual framework outlined above, hypotheses can be drawn in four research constructs. The development of the hypotheses is as follows.

5.3 Research Hypotheses

Based on the extant literature, the present research hypothesises the relationships between the four constructs as follows.

5.3.1 Effects of Cultural Dimensions on Perceived Paradoxes of Mobile Technology

The present research includes Hofstede's six cultural dimensions – power distance (PDI), uncertainty avoidance (UAI), masculinity/femininity (MAS), individualism/collectivism (IDV), long/short-term orientation (LTO) and indulgence/restraint (IVR). These cultural dimensions have different characteristics, which may lead people to different perceptions regarding different paradoxes. From the literature review, it can be seen that each cultural dimension may or may not have influence on perceived paradoxes of an event. The possible relationships between the specific cultural dimensions and perceived paradoxes are discussed below.

5.3.1.1 Individualism/Collectivism (IDV)

People who possess highly individualistic values (and who are called 'individualists' hereafter) expect to look after themselves and their immediate family. Individualists tend to be self-sufficient, by doing DIY (e.g. painting walls, wallpapering, etc.) for their houses, because they do not like to rely on others or on products (de Mooij, 2011). It also implies that they require others to be as independent as themselves. On the other hand, people who possess low individualistic values (high collectivisitic values, called 'collectivists' hereafter) expect to look after their relatively large family including most of the relatives and in-groups. This means that collectivists would expect to help their whole family and in-groups, and also hope for some reciprocal help. Obligations to family activities are important in the daily life of collectivists (Hofstede *et al.*, 2010).

In terms of how this applied to mobile technology paradox constructs, it could be said that there are five main themes that can be related to the description of the cultural

dimensions above. These paradox constructs are empowerment/enslavement, independence/dependence, fulfill needs/create needs, and engaging/disengaging paradoxes.

The first paradox construct, empowerment/enslavement, is concerned with the freedom to make connections with others. In terms of mobile devices, people are free to call others because of the power of mobile technology, but the recipients, who may not really want to answer, may nevertheless feel pressure to answer some calls (Jarvenpaa and Lang, 2005). For collectivists, mobile phones are a powerful tool for reaching out to others for help, and they also expect to be reached by the same means and for the same reasons. Individualists on the other hand, may feel unwanted pressure to answer some phonecalls because they only want attention from close and important callers. They expect others to take care of themselves and to be independent. However, in the era dominated by mobile phones, it is difficult not to answer in-coming calls. Therefore, it is plausible to posit that:

H1a-1: The Individualism/Collectivism dimension and the empowerment / enslavement paradox are related.

The second paradox construct, independence/dependence, is concerned with dependence on connectivity. As collectivists feel largely obligated to connect to others in order to offer or receive help, they tend to rely on the ubiquitous connectivity offered by mobile phones. Therefore, collectivists may perceive more strongly than individualists that they are dependent on the mobile phones. Therefore, it is plausible to posit that:

H1a-2: The Individualism/Collectivism dimension and the independence / dependence paradox are related.

The third paradox construct, fulfill/create needs, is concerned with getting one's own and others' needs met. Collectivists are inherently willing to help their in-groups, meet their needs and at the same time, to have their own needs supported. Collectivists may consider mobile phones as a means of fulfilling their need for support, based on the connectivity of this medium. However, at the same time, in order to make mobile phones work better for communication, collectivists may find themselves buying extra equipment which was not previously necessary, e.g. extra chargers, applications, etc. Therefore, it is plausible to posit that:

H1a-3: The Individualism/Collectivism dimension and the fulfill/create needs paradox are related.

The fourth paradox construct, engaging/disengaging, is concerned with 'engaging with others'. As collectivists are obligated or inherently willing to engage with family/social activities, they may feel good about being able to take part in family/social activities when they cannot be there physically. The ability to take part in activities, by talking or video-conferencing from a mobile phone compensates for their physical absence. In contrast, individualists, who have a need for efficiency (Liu, *et al*., 2001), may not like to be disturbed or interrupted, either in respect to the things they are working on, or the activities they are engaging in. Thus individualists may not be impressed by the ability of the mobile phones to disengage them from their task, Therefore, it is plausible to posit that:

H1a-4: The Individualism/Collectivism dimension and the engaging / disengaging paradox are related.

The fifth paradox construct, the competence/incompetence paradox, is concerned with efficiency. Individualists expect more from others than collectivists (Furrer *et al.,* 2000; Swanson *et al.,* 2011). They demand efficiency, and demand others to be efficient (Liu *et al.*, 2001). Therefore, it is plausible to posit that:

H1a-5: The Individualism/Collectivism dimension and the competence / incompetence paradox are related.

Furthermore, individualists expect others to understand them, and give them attention. They demand and expect that service providers should give their customers confidence about the service they receive (Donthu and Yoo, 1998). From the discription above, it seems that individualists may hold higher expectations of both products and the people who provide or service them. Expectations are the main theme in the illusion/disillusion paradox. Individualists who hold high expectations by mobile technology may also feel disappointed by the fact that mobile phones sometimes fail them. Therefore, it is plausible to posit that:

H1a-6: The Individualism/Collectivism dimension and the illusion/disillusion paradox are related.

de Mooij (2011) also found that individualists prefer to live in detached houses, instead of flats; and they normally prefer to have private gardens (de Mooij and Hofstede, 2002). It means that they would try to prevent intrusion into their privacy, especially from the public. In contrast, collectivists frequently socialise in public

(Hofstede *et al.*, 2010), and may also enjoy being able to communicate in public when the persons they wish to communicate with cannot be physically present (Chan *et al.*, 2007). Therefore, it is plausible to posit that:

H1a-7: The Individualism/Collectivism dimension and the public/private paradox are related.

From the hypotheses above, it can be seen that the Individualism/Collectivism cultural dimension may be related to seven out of eight mobile technology paradoxes. Some researchers (e.g. Triandis, 1990) suggest that this cultural dimension is the most important one for explaining cross-cultural phenomena (Swanson *et al.*, 2011).

5.3.1.2 Masculinity/Femininity (MAS)

The values of this cultural dimension are representative of psychological gender rather than biological gender (Srite and Karahanna, 2006). A society which has high masculine culture value emphasises goals/achievements, material success, competition, ambition and independence. Cultures with low masculinity (high feminine) care for quality of life, interdependence, and people (Hofstede, 1991, 2010). Swanson et al. (2001) collaborate that cultures which are close to the feminine emphasise human relationships.

From the descriptions above, three paradox constructs of mobile technology are related to this cultural dimension. The first one is the competence/incompetence paradox. Efficiency is the theme for this paradox, and it is seen as desirable for masculine cultures, since being efficient means moving ahead of competition and being first to fulfill ambition. The competence which is brought about by the use of

mobile phones would be perceived as important by people living and working in this cultural dimension. Therefore, it is plausible to posit that:

H1b-1: The Masculinity/Femininity dimension and the competence / incompetence paradox are related.

As more feminised cultures tend to focus on interdependence and human relationship, being able to connect to others while doing other actitivies would be something perceived by such cultures as important. Therefore, it is plausible to posit that:

H1b-2: The Masculinity/Femininity dimension and the engaging/disengaging paradox are related.

The third paradox construct related to this cultural dimension is independence/dependence. Independence (of others) is said to be one of the main characteristics for people living in a masculine culture, while interdependence is said to be a feature of those living in a feminine culture. Looking at the independence/dependence paradox in reference to use of the mobile phones, this cultural characteristic can be seen in the way that is used. People who tend to be dependent on, or independent of others would be dependent on or independent of mobile phones too, as mobile phones act as a tool to reach others. Therefore, it is plausible to posit that:

H1b-3: The Masculinity/Femininity and the independent/dependent paradox are related.

5.3.1.3 Uncertainty Avoidance (UAI)

Uncertainty avoidance (UAI) is the '*extent to which the members of a culture feel threatened by an uncertain or unknown situation'* (Hofstede, 1994, p. 113). People in high uncertainty avoidance cultures are seen to dislike taking risks, and as having a tendency to avoid facing uncertainties. Based on these characteristics, this cultural dimension may be related to paradoxes such as empowerment/enslavement, independence/dependence, fulfilling needs/creating needs, competence/incompetence, planning/improvisation and public/private.

Based on the nature and functions of mobile phones, and the characteristics of UAI, we may propose that mobile phones can be perceived as a useful tool for people who need to to ensure that things are in good control – that is, for those who dislike the ambiguity in 'not knowing what is going on'. Therefore, people in a high UAI culture may feel empowered by the technology more strongly than those in a low UAI culture, as the use of the mobile phones will reward them for being 'in the know'. Therefore, it is plasusible to posit that:

H1c-1: Uncertainty avoidance and the empowerment/enslavement paradox are related.

Planning is something that people do in order to make sure things will be done in an organised and controlled way. People in a high UAI culture may perceive that mobile technology has a positive impact on their need to be in control, but at the same time they may dislike the idea that technology allows people to improvise e.g. to change their plans at will. Therefore, we can posit that:

H1c-2: Uncertainty avoidance and the planning/improvisation paradox are related.

In reference to the need to be in control, people in a high UAI culture may feel that the technology fulfill their needs more than the people in a low UAI culture, therefore we can posit that:

H1c-3: Uncertainty avoidance and the fulfill/create needs paradox are related.

People in a high UAI culture may feel more efficient and effective in organising plans or simply in just making sure things are under control, even when they are not in a fixed place i.e. they can exert control while on a train or bus, or in a restaurant. They may also feel independent by being able to ensure things are in control by themselves, and thus not dependent on other people. This freedom relates to perceived efficiency and effectiveness (competence), privatised public space and independence. Therefore, it is plausible to posit that:

H1c-4: Uncertainty avoidance and the competence/incompetence paradox are related.

H1c-5: Uncertainty avoidance and the public/private paradox are related.

H1c-6: Uncertainty avoidance and the independence/dependence paradox are related.

5.3.1.4 Indulgence vs. Restraint (IVR)

The definition of this cultural dimension is that *: Indulgence stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun…. Restraint reflects a conviction that such gratification*

needs to be curbed and regulated by strict social norms (Hofstede *et at.,* 2010, p. 281). This cultural dimension is, therefore, related to percepions of life control, freedom of choice and importance of leisure.

Hofstede and his colleagues (Hofstede *et al.,* 2010) found a correlation between IVR and 'recalled frequency of emotional experience' as identified by some Belgium researchers. The findings indicated that people from a more indulgent culture are more likely to perceive positive emotions. Relating this concept to the present research, we can say that people from a more indulgent culture would perceive the positive aspects of mobile phones more than the negative aspects. As each paradox in the present research relates to a positive and a negative perception, it is reasonable to assume that IVR is related to perceived paradoxes. Therefore we can posit that:

H1d-1: Indulgence vs. restraint and the empowerment/enslavement paradox are related.

H1d-2: Indulgence vs. restraint and the independence/dependence paradox are related.

H1d-3: Indulgence vs. restraint and the fulfill needs/create needs paradox are related.

H1d-4: Indulgence vs. restraint and the competence/incompetence paradox are related.

H1d-5: Indulgence vs. restraint and the planning/improvisation paradox are related.

H1d-6: Indulgence vs. restraint and the engaging/disengaging paradox are related.

H1d-7: Indulgence vs. restraint and the public/private paradox are related.

H1d-8: Indulgence vs. restraint and the illusion/disillusion paradox are related.

Based on the literature, the cultural dimensions related to the perceived paradoxes are discussed above. However, two cultural dimensions which are shown no connection in the extant literature are power distance (PDI) and long/short-term orientation (LTO). Therefore, there are no hypotheses related to these two cultural dimensions.

5.3.2 Effects of Perceived Paradoxes on Coping Strategies

Mick and Fournier (1998) and Jarvenpaa and Lang (2005) both discuss the coping strategies that participants employ when they encounter a technology paradox. But since their work, not much research has been done in this regard. The findings of Walsh et al. (2008) which relate to the dependence/independence paradox suggest that the technology paradox may cause anxiety and personal distress. In the same vein, Mick and Fournier (1998) suggest that technology paradoxes may cause stress and anxiety. Consumers who are stressed, anxious, or distressed as a result of the influence of the technology paradox may employ either a confrontation or an avoidance coping strategy to deal with the unpleasant feelings arising, since such coping strategies will allow people better to adapt to disruptive events and issues (Folkman and Lazarus 1985; Lazarus and Folkman 1984). Otnes et al. (1997) associate consumer ambivalence, and/or mixed emotions caused by conflict between expectations and outcomes, to different coping strategies. The research of Yi and Baumgartner (2004) in the relationship between post-purchase emotions and the adoption of coping strategies reveals that different emotions may be enacted through different coping strategies. Chae and Yeum (2010) echo Mick and Fournier's call to investigate whether there is any moderator or mediator between perceived

paradoxes and coping strategies. The result of their research shows that perceived paradoxes are mediated by anxiety and stress on the route to the adoption of a coping strategy. However, their result also shows that while the mediating effect of anxiety/stress on coping strategy is significant, it is also weak, there being only a 0.2% increase of the variance explained in the coping strategies employed. This indicates that with the absence of the mediating variable of anxiety/stress, perceived paradoxes may still have impact on coping strategies. From the research cited above, it would appear that most of the perceived paradoxes have a positive effect on anxiety and stress, and lead to an enactment of avoidance coping strategies. Therefore, it is plausible to posit that:

H2a-1: The empowerment/enslavement paradox and the avoidance coping strategies are related.

H2a-2: The independence/dependence paradox and the avoidance coping strategies are related.

H2a-3: The fulfilling/creating needs paradox and the avoidance coping strategies are related.

H2a-4: The competence/incompetence paradox and the avoidance coping strategies are related.

H2a-5: The engaging/disengaging paradox and the avoidance coping strategies are related.

H2a-6: The illusion/disillusion paradox and the avoidance coping strategies are related.

However, two paradoxes, planning/improvisation and public/private paradoxes, show a negative effect on anxiety/stress, leading to the employment of a confrontation strategy, though the relationships are not significant (Chae and Yeum, 2010). It

means that the more paradoxical feelings perceived, the less anxiety/stress created. These authors suggest that the impact of these two paradoxes may be positive to people, as using mobile phones in public may have become a social norm that becomes acceptable practice for most people. Also, the capacity for improvisation, being enhanced by used of mobile phones, has changed the way people do things, and has perhaps made their actions more efficient. Therefore, for these two paradoxes, it would appear that the perceived paradoxes have a negative effect on anxiety and stress, and lead to an enactment of confrontation coping strategies. Accordingly, it is plausible to posit that:

H2a-7: The public/private paradox and the confrontation coping strategy are related.

H2a-8: The planning/improvisation paradox and the confrontation coping strategy are related.

5.3.3 Coping Strategies vs. Consumer Loyalty

Cui et al. (2009) tested the relationship between a pre-adoption coping strategy and intention to purchase a new technology product; their findings confirm that people who employ a confrontative strategy tend to have a positive attitude towards adoption and purchase intention. Yi and Baumgartner (2004) stress the importance of undertanding consumers' coping strategies in dealing with negative emotions, as these may affect consumers' repurchase behaviour by, for example, disseminating negative word-of-mouth. These authors offer a plausible assumption that successful implementation of coping strategies will be related to higher consumer loyalty which can be attributed to purchase intention of consumers. Also, as stated by Lazarus and Folkman (1984), the final goal of coping is to reduce emotional stress and change the situation to an acceptable one. Putting this concept into a consumption situation,

it suggests that the use of coping strategies may help consumers to restore a sense of well-being (Begley, 1998). That is, by adopting either a confrontation or an avoidance coping strategy when they encounter an amibiguous, negative or distruptive situation, consumers can avoid the anxiety arising from making a complaint or dissemilating negative word-of-mouth. Therefore, it is plausible to posit that:

H3a: The confrontative coping strategy and consumer loyalty are related.

H3b: The avoidance coping strategy and consumer loyalty are related.

5.3.4 Coping Strategies as a Mediator

It has been argued that consumers' experience of using products affects their product/service evaluation and influences their next purchase (Schiffman *et al.*, 2008). This indicates that perceived paradoxes tend to influence consumers' loyalty to a product. To this regard, Olsen et al. (2005) specifically point out that consumers who have ambivalence and/or mixed emotions towards a product tend to report a lower rate of satisfaction and loyalty than those who do not have such emotions. This may be because ambivalent feelings and emotions may be triggered by perceived conflict between consumers' internal expectations and their encounter of external realities (Johnson *et al.*, 2008; Otnes *et al.,* 1997). Underpinning this view, Otnes et al. (1997), in their definition of consumer ambivalence, stress that '…*the simultaneous or sequential experience of multiple emotional states….. can have direct and/or indirect ramifications of prepurchase, purchase or postpurchase attitudes and behaviour'* (p.83). Extending this premise it could, therefore, be argued that perceived paradoxes may affect consumer loyalty to mobile technology. However, given the presumed relationship between perceived paradoxes and coping

strategies, the relationship between perceived paradoxes and consumer loyalty could be mediated by coping stratgegies. Therefore, it is plausible to posit that:

H4a: Coping strategies mediate the effect of the perceived empowerment / enslavement paradox on consumer loyalty.

H4b: Coping strategies mediate the effect of the perceived competence / incompetence paradox on consumer loyalty.

H4c: Coping strategies mediate the effect of the perceived fulfilling/creating needs paradox on consumer loyalty.

H4d: Coping strategies mediate the effect of the perceived independence / dependence paradox on consumer loyalty.

H4e: Coping strategies mediate the effect of the perceived planning / improvisation paradox on consumer loyalty.

H4f: Coping strategies mediate the effect of the perceived engaging / disengaging paradox on consumer loyalty.

H4g: Coping strategies mediate the effect of the perceived public / private paradox on consumer loyalty.

H4h: Coping strategies mediate the effect of the perceived illusion / disillusion paradox on consumer loyalty.

The above hypotheses between the research constructs were made based on the literature review.

Once the hypotheses are set, the next step is to make them as operationalisable items. This is discussed below.

5.4 Operationalisation of the Research Model

As stated before, conceptualisation is the process that surrounds the understanding of concepts, while operationalisation is the process required to translate the concept into testable elements (Ekinci, 2011). It is crucial to delineate how, in this research, each paradox is perceived, and how the paradoxes are deconstructed into operationalised elements.

5.4.1 Conceptualisation of the Paradoxes

Mick and Fournier (1998) and Jarvenpaa and Lang (2005) defined ‘paradoxes’ to mean the ambivalent and contradictory emotions perceived by the consumers when they use personal technology. In Jarvenpaa and Lang’s case, the technology referred to was the mobile phones. In both of these studies, each paradox is the conclusion from a grouped theme, in which attributes are perceived both positively and negatively at the same time. In Jarvenpaa and Lang’s study, the eight themes address the eight paradoxes identified in their research. The present research has adopted Jarvenpaa and Lang’s construction as appropriate because the research is based on mobile technology.

However, whilst Jarvenpaa and Lang’s study usefully identifies eight paradoxes it is nevertheless limited in failing clearly to define those paradoxes, with the result that some negative and positive aspects appear to be interchangeable. For example, in the ‘engaging/disengaging’ paradox, it was found that the use of mobile phones to disengage people from gatherings was perceived by some people as annoying. On the other hand, others reported perceiving disengagement to be a good thing. Accordingly, the present research sought to bring more clarity to the definition of each paradox.

This is challenging, in that the extant literature offers very limited research related to consumers' paradoxical perceptions in their use of technology products. Reviewing the literature suggests that Johnson et al. (2008), who sought to understand how paradoxes of technology affect customer satisfaction, is currently the closest work to the present research. These authors define a paradox as '*something (that) is liked and disliked, advantageous and disadvantageous at the same time*' (Johnson *et al.*, 2008, p. 418). They argue that positive perceptions of technology are considered as positive drivers to using technology, and vice versa. Therefore, in the present research, the 'liked/advantageous' part of the paradox is defined as a positive attribute of mobile phones; and the 'disliked/disadvantageous' part of the paradox is defined as a negative attribute. Therefore, when a positive and negative attribute are perceived at the same time, a paradox emerges. The present research adopts the idea of Johnson et al. (2008), and defines each paradox by a positive attribute and its countered negative attribute. The definition of each set of positive/negative attributes is considered in the section below, dealing with the operationalisation of the paradoxes.

5.4.2 Operationalisation of the Paradoxes

An operationalisation of concepts refers to the process of making intangible concepts into measureable/testable items (Ekinci, 2011). The process can be broken down into the two steps of defining the concepts and translating the concepts into measurable elements. The importance of the operationalisation of the concept of paradoxes in the present research is fourfold. Firstly, this process serves to provide a theme for each paradox construct, so that hypotheses can be made based upon each theme. Secondly, it serves to provide a guideline concerning the issues that should be covered in data collection, for instance the focus group discussion. Thirdly, it serves to form a basis for data analysis. Lastly, it serves to act as a specification of

each paradox, around which statements can be built at the questionnaire stage of data collection.

There are eight paradoxes offered in Jarvenpaa and Lang's (2005) studies, derived from eight sets of positive and negative attributes of mobile phones. As each positive and negative attribute represents a construct, this means there are a total of 16 constructs to be defined. In the present research, the researcher chose to combine the statements and explanations of each paradox from the original work of Jarvenpaa and Lang (2005), with definitions of each construct (word) as found in the Oxford English Dictionary (OUP, 2009), to make a set of new definitions relating to the paradoxes of mobile technology.

Table 5.1 provides a summary of the definitions of the 16 constructs based on the two sources mentioned above. The definitions of the eight paradoxes are also provided.

Table 5.1 Definitions of Paradoxes Derived from Oxford English Dictionary and the Extant Research

Paradox Constructs			Definitions of the Paradox in this research
Empowerment			**Freedom** People have gained freedom of control that they did not have before (Empowerment) but, at the same time, have lost freedom from control which they had before (Enslavement).
Enslavement			
Independence			**Connectivity Time and space** People are independent from time and space due to the connectivity that mobile phones provide (Independence), but at the same time they are dependent on the 'always-on' feature of mobile phones (Dependence).
Dependence			
Fulfills needs			**Needs** People feel that mobile phones fulfil their needs, but mobile phones also create more needs which are an extra burden for people.
Creates needs			
Competence			**Efficiency/Effectiveness** People feel competent because of the functions of mobile phones which make them more effective and efficient. But when these seemingly useful functions are either difficult to learn, fail to function as expected, or function too well, or fail to fulfil expectations, this may lead a user to feeling incompetent.
Incompetence			

Table 5.1 Definitions of Paradoxes Derived from Oxford English Dictionary and the Extant Research (Continued)

Paradox			Definitions of Paradoxes in this research
Planning			**Organised/Improvised** People feel more organised since mobile phones were introduced, because they can plan ahead and arrange tasks, regardless of when and where they are. But people may also feel uncomfortable when people improvise and become less organised because of the same attribute.
Improvisation			
Engaging			**Parallel activities** People feel good about being able to engage in simultaneous parallel activities, but may also feel bad about their own or others' disengagement from activities through the use of mobile phones.
Disengaging			
Public			**Privacy** People enjoy being able to conduct their private conversations or tasks via mobile phones in a public area, because they are not restrained by the time and space. But people may also feel annoyed by other people's private conversations or tasks as imposing on the public good.
Private			
Illusion			**Expectation** People hold the expectation of being able to engage in any verbal activity, anytime, and anywhere via mobile phones. However, they may gradually come to realise that mobile phones cannot do everything for them, even given the flexibility of time and place.
Disillusion			

5.4.2.1 Empowerment/Enslavement Paradox

Freedom seems to be the theme that emerges from the literature on the empowerment/enslavement paradox. The Oxford English Dictionary definition of empowerment is to give people power to do something which they could not do before, with the result that they become more confident, especially in controlling their lives (OUP, 2006). Empowerment is, therefore, defined as a positive attribute which can be extended to the use of mobile phones in helping people to control their lives. Enslavement on the other hand is defined as loss of freedom and as such is a negative attribute. From the above, it is concluded that in the use of mobile phones:

> *People have gained freedom of control that they did not have before (empowerment) but, at the same time, have lost freedom from control which they had before (enslavement).*

It follows that when people feel that they have gained freedom from mobile phones (in doing things) which they had not enjoyed before, they are more likely to apply a positive attribute to mobile phones in their lives. Similarly, when people feel that they have lost the freedom to do things because of the influence of mobile phones, they are more likely to attribute negative qualities to mobile phones in their lives. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.2 Independence/Dependence Paradox

Mobile phones could to be said to have changed the social fabric of our times. When people wanted to make contact with other people before the invention of mobile phones, they were restrained by time and space. Now, people are independent from this restraint because mobile phones allow them to connect to others whenever and

wherever they are – this is defined as a positive attribute of mobile phones. At the same time, people are heavily dependent on the connectivity. They expect themselves to be able to connect to other people anytime, anywhere, and they also expect other people to be always connected and always (switched) on. There may lead to stress and anxiety. This is defined as a negative attribute. From the above, it is concluded:

> *People are independent from time and space due to the connectivity that mobile phones provide (independence), but at the same time they are dependent on the 'always-on' feature of mobile phones (dependence).*

If people feel that they are free from the restraints of time and space when using mobile phones to conduct tasks, they are more likely to attribute positive perceptions of mobile phones. Conversely, if people rely too much on the 'always on' connectivity - although it may mean more efficient use of time and space, and/or the capacity to receive timely responses/answers from others - the relentless nature of these expectations may lead to anxiety and stress, and as such, to a negative perception of mobile phone attributes. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.3 Fulfilling/Creating Needs Paradox

Mobile phones fulfil people's needs in mobile communication, so fulfilling needs may be defined as a positive attribute. However, because of certain limitations of mobile technology, some new needs are created, such as requiring insurance for the handset. These new needs are considered to be an extra burden for the consumers, and as such could be defined as a negative attribute. From the above, it is concluded that:

People feel that mobile phones fulfil their needs, but mobile phones also create more needs which are an extra burden for people.

If people feel that their needs are fulfilled by mobile phones, they perceive mobile phones' positive attributes; if they feel that more, or new needs create an extra burden for them, they perceive mobile phones' negative attributes. When people perceive both of them, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.4 Competence/Incompetence Paradox

Use of mobile phones enables people to work more efficiently, since it allows them to do things on the go, and make better use of their time whether they are travelling or away from the office or home. That means that some functions of mobile phones help people to conduct tasks more efficiently and effectively than before, as well as allowing people to feel competent in the technology. This may be defined as a positive attribute of mobile phones. However, there are also a few negative attributes. Firstly, people need to learn how to use the various functions of individual mobile phones to be able to utilise them. It may be a challenge for people to operate different tasks from a small gadget, so it can be a frustrating experience trying to gain the necessary competence. When frustrated in trying to learn new functions, people feel incompetent since the common expectation is that they should easily manage to learn all the useful tools offered by each new and possibly different phone. Secondly, whilst people may expect functions to be on the whole beneficial, they may find that the efficiency and effectiveness of mobile phones is limited in scope. For example, some mobile handsets allow downloading and opening files, but the files are normally read-only. An attempt to do the last-minute change of the content may not

be possible. Thirdly, when some functions work too well, they may compromise other competences. For example, the predictive text function allows people to choose the texts/words they intend to use. Consequently, some people have lost the ability to correctly spell words/vocabularies when they do not use the predictive text function. Fourthly, when some functions fail to work, the impression of competence may degenerate into an impression of incompetence. From the above, it is concluded that:

> *People feel competent because of the functions of mobile phones which make them more effective and efficient. But when these seemingly useful functions are either difficult to learn, fail to function as expected, function too well, or fail to fulfil expectations, this may lead a user to feeling incompetent.*

If people find themselves completing tasks more efficiently and effectively than in the time before mobile technology was introduced, they perceive mobile phones as having positive attributes. If the functions are hard to learn, or the phone functions so well that it compromises other competences that people used to have, or the functions fall short of expectations, then users may perceive mobile phones as having negative attributes. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.5 Planning/Improvisation Paradox

Technology helps people to organise their lives better. People can plan things by making calls, writing emails or text messages via mobile phones and receive confirmation of information quickly, regardless of when and where they are located. Therefore, mobile phones help people better organise their time/tasks. This is defined as a positive attribute. However, as Jarvenpaa and Lang (2005) mentioned,

technology seems to be a substitute for planning rather than an augmentation. People are becoming more and more improvisational (and less organised) because of the mobility and flexibility that mobile phones impose. For example, it is suggested that people are increasingly late for appointments because planned events can be changed anytime. This is defined as a negative attribute.

However, being allowed to be flexible and improvisational as above can be a positive attribute for some people, as it is something that people were less able to do before the use of mobile phones. In order to avoid some confusion and difficulties to define positive and negative attributes for this construct, it was decided that 'planning' should be kept as a positive attribute, while 'improvisation' should be read as a negative attribute of mobile phones. From the above, it is concluded that:

> *People feel more organised since mobile phones were introduced, because they can plan ahead and arrange tasks, regardless of when and where they are. But people may also feel uncomfortable when people improvise and become less organised because of the same attribute.*

If people feel that they are more organised in having mobile phones, they perceive mobile phones' use as a positive attribute. If they feel uncomfortable when people are too improvisational or less organised due to reliance on mobile phones to change plans, they may perceive mobile phones as having a negative attribute. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.6 Engaging/Disengaging Paradox

People can engage themselves in parallel and simultaneous activities because of mobile technology. They can enjoy being in one place with some people while engaging with other people who are in another place via mobile phones. This is defined as a positive attribute of mobile phones. However, while having the ability to engage in parallel activities, people might find that they give only partial attention/participation to each activity in which they are engaged. This means that they are at risk of being partially disengaged from each activity. Since some people feel uncomfortable with their own or others' disengagement in activities, this kind of disengagement may be defined as a negative attribute.

On the other hand, people might also feel good about being able to disengage themselves from participation in some activities through the use of mobile phones. While this can be seen as a positive attribute, the definition is complicated when it attributes a positive perception to a negative construct. Therefore, taking a similar approach to that of the planning/improvisation paradox construct, in order to avoid confusion in defining positive and negative attributes in this construct, it was decided that 'engaging' should be kept as a positive attribute of mobile phones, while 'disengaging' should be kept as a negative attribute. From the above, it is concluded that:

> *People feel good about being able to engage in simultaneous parallel activities, but may also feel bad about their own or others' disengagement from activities through the use of mobile phones.*

If people feel the power of mobile phones enables them to do two or more things at one time, they may perceive this as a positive attribute of mobile phones. But if they

feel discomfort or annoyance in their own or other people's disengagement from an activity, they may be more likely to perceive the use of mobile phones as a negative attribute. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.7 Public/Private Paradox

By using mobile phones, people can communicate with other people at a distance while in a public space such as in restaurants, buses, trains, and so forth. That means that they can take their private conversation into the public arena, an act which they could not have carried out before. This may be defined as a positive attribute. However, other people who are in a public space may be disturbed by others' private conversations, constituting an intrusion into their freedom and privacy. Thus this perception of the same private act in public may be defined as a negative attribute. From the above, it is concluded that:

> *People enjoy being able to conduct their private conversations or tasks via mobile phones in a public area, because they are not restrained by the time and space. But people may also feel annoyed by other people's private conversations or tasks, imposing on the public good.*

If people feel good to be able to do things in public, which they could not do before because of mobile technology, they likely perceive mobile phones as having positive attributes. If people feel uncomfortable having to overhear others' private conversations via mobile phones in public, they may perceive mobile phones as having negative attributes. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

5.4.2.8 Illusion/Disillusion Paradox

From the definition given by the Oxford English Dictionary illusion may be constructed negatively (e.g. wrong idea, or misinterpretation, deception or falsehood) (OUP, 2009). However, in Jarvenpaa and Lang's (2005) definition, illusion pertains to the expectations that mobile phones have brought to people. Because mobile phones enable people to connect to others almost anytime and anywhere, people have acquired an expectation that they can connect to others anytime and anywhere via mobile phones and, at the same time, be closer to others. Whether mobile phones fulfil these expectations or not, they tend to give consumers a hope for a possible future, comprising better and closer communication. Taking this as a premise established by Jarvenpaa and Lang (2005), the present research takes the position that illusion is a positive attribute of mobile phones. But there are limitations to this positivity: the technology fails people from time to time, making it impossible to connect. By the same token, it cannot be guaranteed that easier access to others by mobile phones necessarily means better quality communication. If such an expectation exists and is disappointed, this may result in disillusion. Therefore, disillusion is considered as a negative attribute. From the above, it is concluded that:

> *People hold the expectation of being able to engage in any verbal activity, anytime, and anywhere via mobile phones. However, they may gradually come to realise that mobile phones cannot do everything for them, even given the flexibility of time and place.*

If people hold the expectation that mobile phones can make their life much easier, because mobile phones can permit them to engage in any verbal task, anytime and anywhere they want, they are likely to perceive mobile phones' positive attributes. If conversely people realise that mobile phones cannot facilitate everything or even

function as promised, they may perceive mobile phones' negative attributes. When people perceive both of these conditions, it can be said that they perceive a paradox in their use of mobile phones.

The eight paradoxes for the present research are defined as above, and they are presented in Table 5.1.

The next step is to define the coping strategies.

5.4.3 Defining Coping Strategies

In Mick and Fournier's (1998) 'Paradoxes of Technology', they conclude that two types of coping strategies are involved in two stages (pre-acquisition and post-acquisition) of technology product adoption. As stated in Chapter 2, *Consumer Paradoxical Experience with the Use of Technology and Consumer Loyalty*, only the post-acquisition (consumption) stage is considered in the present research. These definitions are presented in Table 5.2

Table 5.2 Definitions of Consumption Coping Strategies

Source: Mick and Fournier (1998, p. 133)

From Table 5.2, definitions of the six constructs representing the two coping strategies are clearly delineated. Based on these definitions, consumers' coping mechanism may be categorised into either avoidance or confrontation coping strategies.

As mentioned earlier, the conceptualisation and operationalisation of the paradoxes and coping strategies provided the foundation for the focus group operation and development of measurements, both of which contributed to this research.

After clearly defining the constructs, it was possible to develop the measurement scales for testing the two research constructs. The development of the instrument for data collection is described in more detail in the next chapter. Chapter 6, *Instrument Development and Data Collection* will discuss the scale developments for paradoxes

of mobile technology and coping strategies, the adoption of a cultural dimension scale and the adaptation of a consumer loyalty scale.

5.5 Summary

This chapter describes the development of the research model and hypotheses. The research model is presented and explained. A total of 40 hypotheses are composed based on four research constructs, consisting of 17 variables of interest. The conceptualisation and operationalisation of the paradoxes of mobile technology and coping strategies are delineated and that forms the foundation of questionnaire item development.

Chapter 6.

Instrument Development and Data Collection

6.1 Introduction

The process recorded here demonstrates the researcher's ability in designing a competent research instrument, conducting primary research and dealing with related issues.

Each stage of primary research can be considered as a 'journey'. This chapter starts with the journey connected to the use of focus groups and then delineates the development of the questionnaire. The questionnaire for the main data collection consists of four parts: cultural dimensions, paradoxes of mobile technology, coping strategies and attitudinal loyalty. The questionnaire items (called 'statements' in the present research) are formed from different approaches based on the extant research and the primary research conducted by the researcher. These different approaches are also described in this chapter.

The last part of this chapter outlines and examines the data collection process in both the UK and Taiwan.

6.2 Focus Groups Data Collection

As explained in Chapter 4, *Methodology*, there are three purposes to the first stage of data collection using focus groups: to assess the validity of the paradox theory qualitatively; to see if any new paradox emerges from two different cultures; and to

inform the development of the scales for paradox constructs and coping strategies. The scales were developed based partly on the statements collected from the focus groups from two countries, the UK and Taiwan, and partly from the extant literature. The preparation, recruitment of participants and the conduct of the focus groups are outlined below.

6.2.1 Preparation of the Focus Groups

Krueger and Casey (2009) suggest that three to four focus groups in each category are sufficient to reach data saturation. However, the main purpose of the focus groups for the present research was to validate the existing theory and to gather statements and scenarios relating to the paradoxes of mobile technology and coping strategies. Therefore, just two to three focus groups were planned for each nationality giving a maximum six focus groups overall.

The focus groups were planned to involve semi-structured interviews. An outline of the themes to be discussed was included in the focus group guide. The themes were based on the conceptualisation and operationalisation of the paradoxes of mobile technology and the coping strategies of users. These can be found in Chapter 5, *Conceptual Framework (p. 123)*.

The procedure for recruiting participants for the focus groups adhered to the University Research Ethics Committee's (UREC) requirements at Oxford Brookes. Recruitment was conducted only after the researcher was granted approval from UREC. Due to the cost and time constraints, the researcher employed convenience sampling followed by snowballing sampling, as mentioned in 4.7.2.2.2 (p. 100) and 4.7.2.2.3 (p. 101). The researcher sent out an email to her contacts with an invitation outlining the research purpose of the focus group. A participant information sheet

accompanied the email, containing further information on the research process. As the target audience consisted of Taiwanese and British citizens, the researcher's friends who did not fall within the target audience criteria were asked to forward the email to other possible participants who might be interested. The contents of both the email invitation and the participant information sheet were approved by the UREC, and can be found in Appendix I and II.

An audio recorder was prepared for recording the conversations/discussions. Each recorded discussion was transcribed as written data, in order to analyse and document the data.

6.2.2 Conducting the Focus Groups

6.2.2.1 Taiwanese Focus Groups

Two Taiwanese focus groups were conducted in Taiwan in late December, 2010. One Taiwanese focus group was conducted in the UK in January, 2011. Each Taiwanese group consisted of six participants.

In order to make the participants feel more relaxed and ready to talk, all the focus group sessions were informal. The first two groups were conducted in restaurants, which are probably the most common place for people to meet and catch-up in Taiwan. The restaurants were noisy, but the discussion went well and the quality of the audio recordings was acceptable. The third focus group, conducted in the UK, was held in private accommodation. It was much quieter and it was easier to get participants' full attention for the topics under discussion. A summary of the logistics of the Taiwanese focus groups is listed in Table 6.1.

Table 6.1 Summary of Taiwanese Focus Groups

	Participants profile	How it was formed	Where it was conducted	Main operational issues
Group 1	✓ 3 female, 3 male ✓ All students – ▪ 5 final year undergraduate, ▪ 1 mature research student	A friend's friend grouped 5 of her friends	A restaurant in Taipei	Two participants were not actively involved in the discussion. The researcher had to try hard to get them talk.
Group 2	✓ 1 female, 5 male ✓ Professionals, all work in IT industry	The researcher's ex-colleagues	A restaurant in Taipei	No major issues
Group 3	✓ 1 male, 5 female ✓ All students - ▪ 2 language school, ▪ 1 secondary school ▪ 2 mature researchers	Researcher's network in the UK	A friend's house in Oxford	In order to avoid the possible influence of exposure to British culture, the researcher asked the participants to reflect on their behaviour and feelings when they were in Taiwan.

As listed in Table 6.1, a few negative operational issues occurred. The most important one was the inactive participants in the first focus group. The researcher asked for their opinions directly, but this was unsuccessful. During focus group training that was held by Oxford Brookes University (after conducting the three Taiwanese focus groups), it was suggested to avoid asking specific, direct questions, so as not to impose pressure on the participants. This technique was subsequently applied to the British focus groups. Nonetheless, getting all people involved remained an issue.

6.2.2.2 British Focus Groups

Two British groups were conducted in the UK in April 2011. These were conducted after the recordings from the three Taiwanese groups were transcribed and analysed. From the preliminary analysis of the Taiwanese groups, a list of themes was derived and these acted as a guideline for conducting the new focus groups.

After conducting two British focus groups, the data showed that the themes arising from these two groups were similar to those of the Taiwanese groups. The scenarios/statements were sufficient, and no new theme emerged. Accordingly, the purpose for conducting the focus groups was met. Therefore, the researcher decided not to run another group. This explains why only two British groups were conducted. The summary of the British focus groups is in Table 6.2.

Table 6.2 Summary of British Focus Groups

	Participants profile	How it was formed	Where it was conducted	Main operational issues	General issues from both groups
Group 1	✓ 3 male, 3 female ✓ 3 students ▪ 1 undergraduate ▪ 1 postgraduate ▪ 1 secondary school ✓ 3 professionals	The researcher's neighbours	Researcher's house	No major issues	Difficult to get a group (of 6) British nationals together in a place, at an agreed time.
Group 2	✓ 1 male, 5 female ✓ All Oxford Brookes undergraduate students	The researcher's acquaintance	A café in Oxford city centre	Noisy background	

There were no major issues in conducting the two groups. The only one minor issue relates to the location of the second focus group in the public place. From the experience of Taiwanese focus groups, it is suggested that conducting focus groups in a private place would be better, as people would get less distracted. However, due to the busy schedule of the participants in Group 2, it was not possible to get the participants together to meet in a university meeting room. Accordingly, the meeting was arranged in a café in the city centre of Oxford, making noise from a public place inevitable. In contrast, the first focus group, which was conducted in the researcher's house, had less distraction, as this was in a private place.

6.2.3 Evaluation of Focus Group Data Collection

The logic of ease of accessibility for employing convenience and snowball sampling techniques with friends was not entirely confirmed, since it remained difficult to arrange for at least six friends to be in one place at one time. As participation was completely voluntary (no incentive was given), people were less likely to make time, and travel to a certain place for a meeting. This was the main drawback the researcher encountered. Therefore, it took a longer time to complete the first stage of data collection.

6.3 Focus Group Data Analysis

Data from the focus groups were transcribed. The analysis was conducted based on pattern matching (Trochim, 1985; Trochim, 1989), a deductive approach of data analysis for qualitative data (Saunders *et al*, 2007).

In order to gather the data from the focus group to match the 'patterns' from the existing literature – Jarvenpaa and Lang's paradoxes of mobile technology and coping strategies - the 'patterns' had to be defined first. The definitions of the paradoxes and coping strategies were offered in the previous chapter – 5.4 *Operationalisation of the Research Model (p. 142)*.

The definitions of the 16 constructs for paradoxes of mobile technology and the two constructs for coping strategies were provided for the purpose of matching. The transcripts of the three Taiwanese groups were matched first, followed by the two British groups. Based on the definitions of the 18 constructs, the statements (what participants said) from the three transcripts were deconstructed and re-grouped under different constructs. The data from the two countries were grouped separately.

The data analysis for the paradox constructs and coping strategies are detailed below.

6.3.1 Paradox Construct Analysis

As mentioned earlier the analysis was based on pattern matching, and the definitions of the constructs, as defined in Chapter 5, *Conceptual Framework (p. 123).* An example of the grouped data for the ‘empowerment/enslavement’ paradox in two countries is given in Table 6.3 below.

Table 6.3 Empowerment/Enslavement Partial Statements from the Focus Groups

	British	Taiwanese
Empowerment	• I wouldn't allow my kids to go out as much as they do now, if there were no mobile phones. • Mobile phones help me be able to reach my kids. • Mobile phone is good, it helps you keep in contact with people, like far away. • People can represent themselves for business purposes even while they are walking their dogs in the park. • I can talk free to my dad in the States via Internet. • I can always tell my parents where I am; if I change my plan, I can tell them and let them know.	• Now I can go fishing. Before I couldn't go because my family complained that they couldn't reach me if I went fishing • It's easy to reach out. • I can hear my children's voices when I am not with them. • You can show your care to other people. You can call them wherever you are and wherever they are . • Mobile phone gets people to be connected to each other. • I can talk to my friends/relatives overseas via Skype anytime, and anywhere
Enslavement	• Now I don't have the excuse in not being informed. I always have to respond quickly, it's like a duty. • I felt bad when I didn't text back (immediately) to my boyfriend because I know he would get funny if I didn't. • I realise how nice it was to have that kind of excuse that I didn't get the calls, but I cannot go back to the time when there's no mobile phone. • I have to be close to my mobile phone. It's gonna be working, I've gotta be able to hear it. • If you see a phone ringing, you have to get it! • I can imagine if my parents ring me all the time, I would get very annoyed. • Some people just need to know what you are doing every second! • From mobile phone, I can tell them (friends or parents) everything I have done, but not to update them every 5 minutes (friends/parents call all the time).	• I can be reached by my boss or clients easily even when I am on holiday • I feel nervous when the phone rings – I feel obligated to answer it, and I don't really like it • I don't have my freedom anymore. I am constantly reminded about the things I need to do via mobile phones. • I cannot switch off because people would get angry if they couldn't reach me • People cannot find me if I don't have my mobile phone with me. • Using mobile phone seems to be compulsory. Everyone expects you to have it with you. • Mobile phones help my wife to extend her territory over me • I think I could live without a mobile phone, but I still need to carry it with me.

From Table 6.3, statements were grouped under the constructs of empowerment and enslavement. The table also demonstrates a potential tension in comparing these statements from two countries under each construct, due to differences in scenario

and situation. It was, therefore, necessary for the researcher to identify themes arising from the statements in each construct, and then base a comparison on those themes. Appendix V shows an example of how themes identified in a partial focus group transcript. Following a few adjustments that were made after the initial grouping, a list of the themes emerged from the focus groups in the two countries. This is presented in Table 6.4 below.

Table 6.4 Themes of the Statements in Two Countries

	British	Taiwanese
Empowerment	(Good about) Be able to reach out	(Good about) • Be able to reach out • Be able to be reached
Enslavement	(Bad about) • Be reached • Be required to reach out (quickly)	(Bad about) Be reached
Independence	(Good about) Be in charge	(Good about) Be in charge
Dependence	(Good about) • Dependent on the phone (connectivity)	(Good about) • Dependent on the phone (connectivity)
Fulfills needs	• Needs in feeling safe • Needs in enhancing daily life	• Needs in feeling safe • Needs in enhancing daily life
Create needs	• Needs in enhancing phone operations • Needs in security/ data protection • Needs in purchasing stuff for/via the phones • Needs in protecting expensive phones • Needs in being disconnected • Needs in new regulations • Needs in reducing hazard	• Needs in enhancing phone operations • Needs in security/data protection • Needs in purchasing stuff for/via the phones • Needs in protecting expensive phones • Needs in developing new applications
Competence	• Effectiveness • Efficiency	• Effectiveness • Efficiency
Incompetence	• Eye problems • Removal of responsibility and ability	• Eye problems • Removal of responsibility and ability • Don't know how to use some functions
Planning	• Help in scheduling • Being in the know (bad)	• Help in scheduling • Being in the know (good)
Improvisation	• Allowing flexibility (good)	• Allowing flexibility (bad) • Punctuation issues
Engaging	(Good about) Be able to engage in parallel activities	(Good about) Be able to engage in parallel activities
Disengaging	• (Bad) Feelings about other people's disengagement • (Good about) Be able to disengage • (Bad about) Self-conscious in disengaging	• (Bad) Feelings about other people's disengagement • (Good about) Be able to disengage
Public	(Good about) Be able to be reached when they are not home/in the office	(Good about) Be able to be reached when they are not home/in the office
Private	Annoyed by other's private conversation in public	Annoyed by other's private conversation in public
Illusion	• Expectation on the phone itself • Expectation on other people • (Aware of) Expectation from other people	• Expectation on the phone itself • Expectation on other people
Disillusion	• Disillusion from phone operations • Disillusion in connecting people	• Disillusion from phone operations • Disillusion in connecting people • Disillusion from other people's usage

*statements highlighted in red demonstrate the unique themes from both countries

**statements highlighted in blue relate to the same themes emerging from both countries, but given opposite values.

**statements highlighted in green demonstrate a positive perception from a negative construct.

From the grouped themes in Table 6.4 (above), three themes emerged as worthy of discussion; these are highlighted in red, blue and green. As stated below in Table 6.4, a first set of themes, highlighted in red, indicate that these themes were unique to one country. This is unsurprising, given that it is normal for people living in one country and culture to have different ideas/thoughts/concepts to those of people from another country and culture. A second set of themes, highlighted in blue, are represented as emerging from both countries, but with contrasting values. The 'red' and 'blue' statements demonstrate the differences between the two countries, which could be the starting point of a cultural comparison. The statements highlighted in 'green' represent the positive feelings which were found to emerge from a negative construct, which was predicted when defining this paradox construct. As discussed in 5.4.2.5 (p. 150), and 5.4.2.6 (p. 152), in order to avoid confusion, positive feelings towards a negative construct are not necessarily considered as a positive perception.

The paradox statements for the questionnaire were developed based on the themes in Table 6.4, and the definitions of the paradoxes of mobile technology (in Chapter 5, *Conceptual Framework*) stayed unchanged after the focus group data analysis.

6.3.2 Coping Strategy Analysis

The grouping of the statements for coping strategies was based on the two constructs (avoidance and confrontation), consisting of a total of six sub-constructs (Mick and Fournier, 1998). The six sub-constructs were neglect, abandonment, distancing for avoidance strategy, and accommodation, partnering and mastering for confrontation strategy. Both coping strategies were shown in British and Taiwanese focus groups.

After the groupings of the statements based on pattern matching, the 16 paradox constructs and the two coping strategy constructs were validated. The rest of the statements which did not fit in to any of the above-mentioned constructs were also analysed, but no new theme was found related to paradoxical impacts. The results of the focus groups are discussed in the following section.

The focus group analysis is included in this thesis as Appendix VI.

6.3.3 Results of the Focus Group

The data in Table 6.4 show that the eight paradoxes under discussion were validated. That is, the eight paradoxes of mobile technology were found to exist within the focus groups of two cultures in this study. Omitting those common themes in Table 6.4 (p. 167) that were perceived by the participants from both countries, the following Table 6.5 shows the main differences in perceptions between participants in the UK and Taiwan.

Table 6.5 Main Differences between Focus Group Data from the UK and Taiwan

	British	Taiwanese
Empowerment		Be able to be reached
Enslavement	Requirement to reach out (quickly)	
Independence		
Dependence		
Fulfils needs		
Create needs	Needs in being disconnected Needs in new regulations	Needs in developing new applications
Competence		
Incompetence		
Planning	Being in the know (bad)	Being in the know (good)
Improvisation	Allowing flexibility (good)	Allowing flexibility (bad)
Engaging		
Disengaging	Self-conscious in disengaging	
Public		
Private		`
Illusion	Expectation on other people (Aware of) Expectation from other people	Expectation on other people
Disillusion		

**gray-out areas mean that these constructs showed no difference between the two countries*

From Table 6.5, the differences between the two countries are shown in eight constructs. Such differences may be explained in the light of cultural dimensions inherent in each country. For example, the empowerment/enslavement paradox was perceived differently in the two countries. Being able to be reached was considered as an empowerment for Taiwanese groups, whereas British groups perceived empowerment only through reaching out. The finding reflects some of Hofstede's cultural dimensions, particularly those related to collectivism vs. individualism. People from collectivistic cultures are concerned about their in-groups, so they would expect themselves to be there to help and protect in-group members (Hofstede, 1991; Hofstede, 2001; Hofstede and Hofstede, 2005; Hofstede *et al.*, 2010; Hoftstede,

1980). This may explain why Taiwanese groups felt empowered by being able to be reached.

Since the purpose of the focus groups was to validate and find the existence of any possible paradox of mobile technology, the use of focus group data to validate cultural dimensions will not be further discussed here. However, this question could be a potential extension to this research in the future (see 8.8.1, *Based on the Focus Group Findings, p. 286*).

Based on 6.3.1 (p. 164) and 6.3.2 (p. 168), it shows that the 16 paradox constructs and two coping strategy constructs were proved to exist in both countries. Accordingly, focus group served the purpose of validating the phenomena under investigation in both UK and Taiwan.

Following the analysis of the focus group data, the next step was to develop statements for the two areas of study, that is, paradoxes of mobile technology and coping strategies.

In the following sections, the formation of the scales used in the study is discussed. That includes developing new scales and adopting and adapting existing scales for the present research.

6.4 Questionnaire Development

An online questionnaire was designed as the second stage of data collection, in order to gather the main data. There were four main elements included: the paradoxical perceptions of the use of mobile phones; coping strategies to deal with the perceived paradoxes; attitudinal loyalty; and participants' cultural dimensions.

The questionnaire statements (items) in these four parts were generated based on different approaches according to the extant research. These approaches were a). developing from scratch, b). adapting, and c). adopting from existing scales. A total of 91 statements were made from the three approaches. These statements were all checked by native speakers, with subsequent amendments. As a result, with the inclusion of a filter question and a few demographic questions, the final questionnaire contained 97 questions/statements. The questionnaire can be found in Appendix VII and VIII (Chinese version).

The Chinese language version of all the statements was translated by a freelance translator who is based in Taiwan and has been working as a freelance English to Chinese, Chinese to English translator for the past 10 years. Her English to Chinese translation works include a few documentaries produced by the Discovery Channel. A note regarding the language translated is that the Chinese language used in Taiwan is slightly different from the Chinese used in mainland China. As the researcher is from Taiwan, and the participants in the research are Taiwanese, the Chinese language translated was Taiwanese Mandarin (Taiwan's official language). This version of the Chinese language questionnaire was checked by a Taiwanese researcher whose mother tongue is Taiwanese Mandarin. Then it was back translated into English by the researcher who is also a freelance translator, and has more than 10 years of experience in English to Taiwanese/Mandarin translation. The back translation was then checked by an English native speaker. No major change was made after the back translation.

The following section delineates the process for generating the statements for each element of the questionnaire.

6.4.1 Developing the Paradox of Mobile Technology Scale

As stated, stage one data collection (focus group results) informed two parts of the questionnaire development: paradoxes of mobile technology and coping strategies. The research wished to test people's perception of the paradoxes of mobile technology. The original studies of the paradoxes of mobile technology (Jarvenpaa and Lang, 2005), and the paradoxes of technology (Mick and Fournier, 1998) were both produced from qualitative research. That means that the paradoxes were emergent, but not measured. From the extant research, it shows that there was no existing scale for testing people's ambivalent feelings, not to say the paradoxical feelings of using mobile phones. Although Johnson et al. (2008) develop items to test technology paradoxes while using self-service technology, the scale styles are not consistent, and are not preferred for the present research. Therefore, the statements for testing the paradoxes had to be developed from scratch by the researcher.

The development of instruments for measuring the paradoxes of mobile technology and coping strategies followed Churchill's (1979) paradigm. To be able to measure the eight paradoxes, statements for the 16 constructs needed to be developed. It was decided to have three to four statements to test one construct, as multi-item measures are suggested to be more efficacious (Churchill 1979). In this respect, the total number of statements was likely to lie between a total of 48 and 64. There are four stages of statement development and they are listed in table 6.6 below.

Table 6.6 Four Stages of the Paradox Technology Scale Item Development

	Activities	Results
Stage 1: Drafting the statements	Statements pooled from focus groups results, and Jarvenpaa and Lang (2005) studies.	64 statements were produced (four statements each for the 16 constructs)
Stage 2: Testing the statements	Statements checked by 20 native speakers.	Amendment of ambiguous statements, discussion of special issues and outline of justifications.
Stage 3: Checking validity	Q-methodology employed for ensuring face validity.	Eight statements with low face validity were eliminated, leaving 56 statements.
Stage 4: Pilot-testing the statements	Pilot-testing of statements online with 20 participants.	No major issue raised.

With reference to the above table, the stage particularly worth mentioning is Stage 3, to check the validity of the statements. As validity is to ensure that the measurement is testing the idea which is intended to be tested (Ekinci and Riley, 2001), Q-methodology was employed, enabling greater face validity without recourse to statistical analysis.

Q-methodology was introduced by William Stephenson in 1935 as a systematic approach to understand people's subjectivity (McKeown and Thomas, 1988). Instead of taking individuals as the subjects of study, Q-methodology takes the 'statements' (called Q samples) as the subjects. The word 'Q' is from factor analysis – Q-method. A normal factor analysis is called R-method, which serves to investigate the correlations between variables. Q-method, conversely, is used to explore correlations between subjects, which are identified as Q samples (that is, the statements in the present research). A major difference between Q and R-method (factor analysis) is that Q-method does not need a large number of participants to take part. The similarity is that both methods require large number of 'subjects' (refers to 'participants' in R-method, and 'statements' in Q-method). Based on the two characteristics of requiring less participants and large number of statements,

Q-method was considered an ideal method to be employed for increasing the validity of the scale, which consisted of 64 statements.

In research based on Q-methodology, each statement within a given topic is classified into one of a number of categories, and then within each category each statement is ranked according to its perceived relevance to the topic. At the end of this process, the statements ranked as most perceptibly relevant to a specific category are then considered to be related to that category.

The process of conducting the Q-methodology in the present research was to run an alternative Q-method. The differences between the normal and the alternative Q-method are shown in Table 6.7 below:

Table 6.7 Normal Q-Method vs. Alternative Q-Method

	Normal Q-method	Modified (alternative) Q-method adapted by the present research
Step 1	**Q-Sort** Sorting Q samples. Participants sort samples into different constructs	**Q-Sort** Sorting Q samples. (Samples are 'statements' gathered from the extant research or primary data) Participants sort statements into different constructs
Step 2	Rank orders of each statements based on the relevance to the construct	Do not rank orders
Step 3	Statistical analysis should be run. Conduct correlation and factor analysis to know what are interrelated.	Do not run statistical analysis Eliminate most wrongly sorted statements for each construct
Step 4	The statistical result shows which samples are related to which construct.	The result shows which statements are perceived to represent which construct.
Result	Provide statistical proof to ensure the face validity of each construct (McKeown and Thomas, 1988).	Increase the face validity of the constructs.

From the table above, the alternative Q-method (on the right), as employed in this research, was modified from the normal Q-method by omitting the statistical analysis.

That is, participants needed only to classify the items (statements) into the constructs based on the definitions. Thus, the 64 statements were printed out and cut into 64 pieces of paper. The definitions of the eight paradoxes were also provided. Each piece of paper was randomly picked by the participants, and the participants read each of the statements and sorted them into the constructs. The result of the alternative Q-method showed which statements were mostly sorted in either the correct or wrong constructs. As a result, the most wrongly sorted statements for each construct were deleted. A total of eight statements were deleted, leaving a total of 56 statements. The result of the alternative Q-method shows the face validity of the statements that test each construct.

6.4.2 Developing the Coping Strategy Scale

The statements for testing the coping strategies were modified from the focus group statements, and adapted from Cui et al. (2009). According to the three sub-constructs for each strategy, two statements were made for each sub-construct but the central idea of the statements was based on the two coping strategies. This means that six statements for each coping strategy were made for the scale.

The statements were pilot-tested on 20 English native speakers, and no major issue was raised.

In conclusion, two scales were developed by the researcher in the present research. Fifty-six statements in the scale for testing paradoxes of mobile technology and twelve statements in the scale for testing coping strategies were included in the questionnaire.

The next scale to be discussed is the attitudinal loyalty scale, adapted from the extant literature. The reasons for this adaption and the process of adaption are provided in the following section.

6.4.3 Adapting the Scale

For measuring attitudinal loyalty, the present research chose to adapt scales already existing in the literature. In existing scales measuring attitudinal loyalty, (e.g. Jaiswal and Niraj, 2011; Rundle-Thiele, 2005; Zeithaml *et al.*, 1996), the styles of the questions/statements used are very similar. The difference between such scales relates only to the context.

The present research modified the statements to fit in the mobile technology context. The statements encompass the following elements, which are thought to include the key considerations of attitudinal loyalty (Jaiswal and Niraj, 2011; Rauyruen and Miller, 2007; Zeithaml *et al.*, 1996). These are re-purchase intentions, positive word of mouth intentions, willingness to recommend to others, and encouragement to others to use the products and service of a company.

In the existing scales, there are some different styles of statements that measure each element mentioned above. As the present research chose to use one statement for measuring one element, a total of four statements were made for this part. The researcher chose to have a consistent style of statement, so that respondents could follow the questionnaire easily. Therefore, the same style of statements (starting with: I will …) was made for all elements. The four statements were adapted from Jaiswal and Niraj (2011), Rauyruen and Miller (2007) and Zeithaml et al. (1996). The four statements can be seen in Appendix VII (the questionnaire).

The last scale to be discussed is the scale for testing Hofstede's cultural dimensions. The present research decided to adopt an existing scale but not Hofstede's own scale. This discussion is to follow.

6.4.4 Adopting the Scale

The present research intends to compare two groups of people based on their different nationalities, which represent two different cultures. Since the research adopts Hofstede's cultural dimensions, it seems sensible to adopt his scale (which is called the Value Survey Module – VSM). However, in relation to the present research context and the extant literature, the VSM was not found to be suitable and it never gained popularity (Taras *et al.*, 2009). In the next section, a justification is made for adopting another scholar's scale to test the cultural dimensions of the British and Taiwanese participants in this research.

6.4.4.1 Hofstede's Cultural Value Scale

Hofstede's cultural dimensions are adopted by the present research. The Value Survey Module (VSM) scale is provided on Hofstede's website http://www.geerthofstede.com (Hofstede and Hofstede, 2011), which offers the latest version named VSM 08, along with an English manual providing the instructions to use the scale. These are all free for researchers to download, enabling the replication of research.

However, Hofstede's scale was produced to measure work-related values. Most of the statements in the scale refer to attitudes towards work. But since the target of the present research related to the use of mobile phones by consumers aged between 16 and 60, it was considered that it would potentially be difficult for the targeted respondents to respond to the statements in Hofstede's scale, given that there was

no guarantee that they were in employment or engaged in work experience. Instead, a scale that measures the cultural dimensions related to a consumer's context was needed.

Moreover, another important reason that VSM is not a suitable scale for measuring culture value in the present research is its poor reliability when tested at the individual level (Hofstede, 2002; Spector *et al.*, 2001; Yoo *et al.*, 2011). As mentioned in Chapter 3, *An Overview of The Culture Theory (p. 46)*, the present research chose to test the culture value at individual level in order to avoid the controversial ecological fallacy which equates all individuals in the same country to have the same national cultural characteristics (Hofstede, 1991; Hofstede, 2001; Hofstede and Hofstede, 2005; Hofstede *et al.*, 2010; Hoftstede, 1980; Yoo *et al.*, 2011).

From the two main reasons mentioned above, Hofstede's VSM was not the right scale to be adopted. However, the items for measuring Hofstede's sixth, and newly derived cultural dimension (indulgence vs. restraint) in the VSM 08 appeared to be appropriate for the present research because they were not work-related. As this cultural dimension was officially introduced in 2010 (items were available since 2008), there was hardly any empirical data to validate the scale. Thereby the present research decided to adopt these four items from Hofstede's VSM 08 for measuring the indulgence vs. restraint dimension, as it might produce valuable results for future research.

6.4.4.2 Other Scholars' Scales

A scale for non work-related values was demanded. Scholars in different disciplines have generated such scales, mostly adapted from Hofstede's works in 1980 and 2001. Some scholars have developed scales for testing only part of Hofstede's

cultural dimensions. For example, Hui (1984) produces a 64-item scale to measure one cultural dimension - individualism/collectivism (INDCOL); Bearden et al. (2006) develop an eight-item scale for measuring long-term orientation; Erdem et al. (2006) have a 13-item scale to measure three cultural dimensions (individualism/collectivism, uncertainty avoidance and power distance), and the reliability and validity are both acceptable. Sharma's (2010) 40-item scale for measuring Hofstede's cultural dimension has proven sound in psychometric properties, reliability, validity, and measurement equivalence. However, Sharma reconceptualises Hofstede's five cultural dimensions into ten dimensions. Accordingly, his scale tests ten dimensions which is not really an ideal scale for testing Hofstede's original cultural dimensions.

From the extant literature, only two scales developed for consumer context are worth a further investigation, they are the 26-item cultural value scale (CVSCALE) (Donthu and Yoo, 1998; Yoo *et al.*, 2001; Yoo *et al.*, 2011) and the 20-item scale of Furrer et al. (2000), which have been widely adopted for consumer research. CVSCALE was adapted from Hofstede's (1980, 1991) work to suit a consumer situation. CVSCALE, which contains 26 items to test Hofstede's five cultural dimensions, has been adopted by many scholars e.g. Soares (2005), Reid (2011), and Kwok and Uncles (2005). The results of the reliability test of the scale in these studies are encouraging. Yoo et al. (2011) summarise the reliability test results of CVSCALE reported in 12 studies conducted between 2004 and 2010. The summary shows that CVSCALE has been found to achieve a satisfactory reliability in a variety of countries.

The second scale for measuring Hofstede's cultural dimension is from Furrer et al. (2000). Their scale focusses on measuring value in a service situation. They used one set of items proposed by Hofstede (1991) to describe the key differences

between the two poles of each dimension in terms of general norms. As mentioned, the problem of using Hofstede's items is that they are not meant for testing at the individual level. Spector et al. (2001) find unacceptable low reliability at the individual level when they evaluate Hofstede's VSM94 in 23 countries. Although a few studies have adopted this scale for cross-cultural research, the research of Soares (2005) also suggests the low reliability of this scale in Portuguese samples.

From the delineation above, the present research chose to adopt CVSCALE (Donthu and Yoo, 1998; Yoo *et al.*, 2001; Yoo *et al.*, 2011) based on the extant literature's reliability test results. Taiwan is absent from the list of countries that have been tested using this scale. Therefore, by adopting the scale, the present research can make some contribution to the use and testing of CVSCALE.

6.4.4.3 Reducing Items of the CVSCALE

As mentioned earlier, CVSCALE contains 26 statements to measure Hofstede's five dimensions. It would become a very lengthy questionnaire if all of these statements were adopted in the questionnaire for the present research. Therefore, reducing the items was necessary.

The 26 statements consist of six that relate to long term orientation (LTO); five for power distance (PDI); five for uncertainty avoidance (UAI); six for individualism/collectivism (IDV); and four for masculinity/femininity (MAS). It was decided to have three statements to measure each dimension, so one statement from MAS, two from PD and, UAI, and three from IDV and LTO had to be taken out.

In the process of questionnaire development, the way to reduce the statements generated from literature or primary data is to check the correlations between each

statement and the testing construct. If a statement shows a high correlation coefficient, it means that the statement has a stronger relationship with the construct. That means that it can better represent the construct. Therefore, the higher the correlation coefficient a statement has, the better the statement is for testing the construct. In statistics, the correlation coefficients for all variables (statements) and all factors (dimensions) are called factor loadings. Factor loadings for the statements and dimensions for CVSCALE were obtained by means of a pilot test conducted by the researcher, or from the secondary data based on extant research. The present research chose to use secondary data, largely due to the time constraint. Factor loadings from three studies (Prasongsukarn, 2009; Reid, 2011; Yoo *et al.*, 2011) that adopted CVSCALE are shown in Appendix IX. As three statements were used for measuring each construct, each factor loading was ranked and the top three were chosen. Therefore, the reduced CVSCALE ultimately contained 15 statements.

To sum up, the scale used in the present research for measuring Hofstede's six cultural dimensions combined the reduced items CVSCALE (Donthu and Yoo, 1998; Yoo *et al.*, 2001; Yoo *et al.*, 2011), which measures Hofstede's five cultural dimensions (IDV, MAS, PDI, UAI and LTO) together with Hofstede's VSM 08 for the 6th dimension (indulgence vs. restraint). This resulted in a total of 19 statements to be included for testing participants' cultural dimensions.

Together with the other three parts, the number of questions for the main studies came to 91. Six more questions were added that relate to the demographic and general questions. Therefore, the total number of questions for the questionnaire totalled 97.

The online questionnaire was pilot-tested with 20 English native speakers. The average time for the completion of the online questionnaire was 15 minutes. There was no major issue from participants' feedback, so the online questionnaire was ready to start collecting data.

6.5 Data Collection

The data collection started in mid March 2012. The English version of the online questionnaire for British participants was launched first. The Chinese version, which aimed to collect data from Taiwanese participants, was released a week later. This slight delay was due to the need for some extra time for back-translation.

The questionnaire was designed to be delivered and completed online, as the researcher wanted to take advantage of the World Wide Web, which enables people in different locations to take part in the research. The link was sent out by email and contained a short introduction to the research. A participant information sheet was on the first page of the online questionnaire. The contents of the email and the information sheet can be found in Appendix III and IV.

The approach to find potential participants was snowballing, as stated in Chapter 4, *Methodology (p. 79)*. The idea was to use the researcher's network and hope to expand the network from it. Therefore, a short sentence encouraging friends/acquaintances who received the emails or messages to pass the email was included in the emails or messages posted.

6.5.1 Snowballing in Two Countries

The researcher used two approaches to conduct snowballing of the questionnaire. The first was through emails, and the second was through the social networking site,

Facebook. The effect of snowballing was very different in the two countries, as summarised in Table 6.8 below

Table 6.8 Two Ways to Conduct Snowball and their Effects in Two Countries

	Emails	Facebook	Results
Taiwan	Sent out emails to Taiwanese contacts in the researcher's address book. **Effect:** Some friends posted the link on their Facebook '**Wall**[1]', and their '**Friends**[2]' responded to them regarding participation and/ or had filled in the questionnaire or posted '**Like**[3]' .	1. Posted private '**Messages**[4]' to 'Friends' on Facebook. **Effect:** Most Friends were willing to help and pass it on. 2. Created a private '**Event**[5]' and invited friends to join, and encouraged them to ask their friends to join. **Effect:** Invited 100 Taiwanese 'Friends', and **416 friends'** 'Friends' were invited through friends' networks.	**301** valid responses **(filled in)**
UK	1. Sent out emails to researcher's foreign contacts (mainly those who are now in the UK) including British. 2. Sent to Oxford Brookes research community which hosts more than 800 members of the University's staff/students. **Effect:** Both 1 and 2 above account for 50% of the total number of respondents. But it seems that sending to friends creates a better snowballing effect.	1. Posted private 'Messages' to 'Friends' on Facebook. **Effect:** Most people **did not** respond the message on Facebook. 2. Created a private 'Event' and invited British and foreign nationals 'Friends' to join, and encouraged them to ask their friends to join. **Effect:** Invited 30 'Friends' on the researcher's Facebook, and **no extra number** of potential participants/disseminators were added/invited to this event. Only very few of the above invited their friends/colleagues using the message of the event **via emails.**	**194** valid responses **(filled in)**

Facebook terminology

1. **Wall** – where Facebook users post some texts or photos to show their status (what they think or what they are doing at the moment). Any updates of the status on the Wall can be seen by Friends.
2. **Friend** – a special term to show the relationship between Facebook users. It normally indicates an official acceptance to allow other Facebook users to communicate with the users. Friends on Facebook could be close friends or acquaintances. Someone may even allow complete strangers to become 'Friends' with them.
3. **Like** – to show you like whatever other Friends do on Facebook.
4. **Message** – a space enabling private conversations between Friends and anyone who has a Facebook account.
5. **Event** – where events can be created with a specific date taking place. Users can invite Friends to participate. **Events** can always be seen from the main page before they are expired.

It is difficult to calculate the response rate when using snowballing to collect data, as the total number of the 'reached' potential respondents is unknown. From the two ways listed in Table 6.8, it seems that *Facebook* is a good way to show the visibility of potential respondents. However, it is still not clear which way generated more responses.

From the results of data collection in the two countries concerned, it can clearly be seen that the effect of snowballing worked better in Taiwan, the researcher's country. Using emails or *Facebook* did not have the 'pass-along' effect in the UK. Only a few British friends replied and told the researcher how many potential respondents they had forwarded on emails/messages. It seems that the rest of the potential respondents approached by the researcher only filled in the questionnaire themselves. They did not forward the emails.

Norman and Russell's (2006) research on the pass-along effect shows that three elements may affect people's willingness to forward the survey to others. These are the degree of people's involvement with the survey product; the relationship with the survey topic; and the closeness of people they forward the survey to. This might explain the effect of snowballing in the UK. However, such was not a problem for Taiwanese participants. Therefore, the researcher suspects that there is a relationship between cultural dimensions and the act of snowballing. Taiwanese people, who are in a collectivistic culture, are willing to help out friends, and even friends' friends. British people, who are in an individualistic culture, are less willing to do the same thing compared with their Taiwanese counterparts. Although there is no extant research to support the researcher's speculation, the researcher does believe that in this instance culture plays an important role. Some British friends mentioned

that ‘In our culture, it does not work in this way (snowballing)!’ This is something worthy of future research.

The target number of participants for each country was 200. The Taiwanese side had reached the target by the end of the 6th week of data collection. The number of the British participants did not go any further after the 6th week. In order to obtain data from more participants, the researcher decided to extend the approach to a paper and pencil questionnaire.

6.5.2 Paper and Pencil Questionnaire

A paper and pencil questionnaire was made for data collection from potential British participants. The statements in the questionnaire were randomised, and the order of the five sections was exactly the same as in the online version.

In order to keep to the same approach to reach potential participants, which was convenience and snowball sampling, the questionnaire was given to acquaintances and people they knew who had not filled it in before. As it took around 15 minutes to complete the questionnaire, a stamped envelope was prepared for each questionnaire. By such means it was hoped to increase the response rate, as the respondents could fill in the questionnaire at their own pace and still stay anonymous. A total of 60 paper and pencil questionnaires were given out, and 25 of them were returned. That accounted for a 37.5% response rate. However, ten of them were invalid based on filter questions. Though only 15 responses were useable, the total number of British participants reached 209. As the target number of 200 was met, the data collection stopped.

After closing the data collection, screening and clearing the data for the analysis followed. The procedure of data screening and clearing is delineated in 7.3 (p. 192).

6.6 Summary

This chapter describes the development of the data collection instrument and the deployment of data collection. It begins by delineating the purpose and procedure for, and results of, conducting the qualitative data collection and analysis, with focus groups in both the UK and Taiwan. It continues by detailing the procedure that developed the questionnaire items for the constructs related to perceived paradoxes and coping strategies. Adoption and adaption of existing scales for measuring Hofstede's cultural dimensions and consumer loyalty are also delineated. The chapter is concluded by outlining and commenting on differences in the data collection methods and procedures in both the UK and Taiwan.

Chapter 7.

Findings

7.1 Introduction

This chapter presents the process of data analysis and the findings of data analysis. There are five parts in this chapter. The first part shows the respondents' profiles, which are mainly descriptive data. The data include demographic information and the length of usage of mobile phones of the respondents. The second part delineates the procedure of data screening. The third part covers the first section of the structural equation modelling (SEM), which contains confirmatory factor analysis (CFA) to confirm the hypothesised model. The fourth part contains the second section of the SEM, structural model testing, which serves to test the hypotheses and report the findings. The last part of the chapter contains the assessment of the measurement invariance, which is to ensure the equivalence of constructs in the measurement scale.

7.2 Demographic and Behavioural Characteristics of the Sample

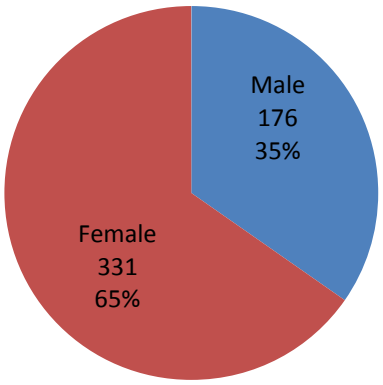
The total number of the respondents who participated in this study is 510. Of these, 301 are from Taiwan and 209 from the UK. Taiwanese data collection lasted for 6 weeks, from 21st March to 7th May, 2012. The data collection in the UK lasted for 4 months, from 14th March to 15th July 2012. The details of the data collection process are explained in Chapter 6, *Instrument Development and Data Collection.*

The following section presents the demographic profile of the samples who participated in this study.

7.2.1 Gender

The proportion of gender from the data of all participants is shown in Figure 7.1.

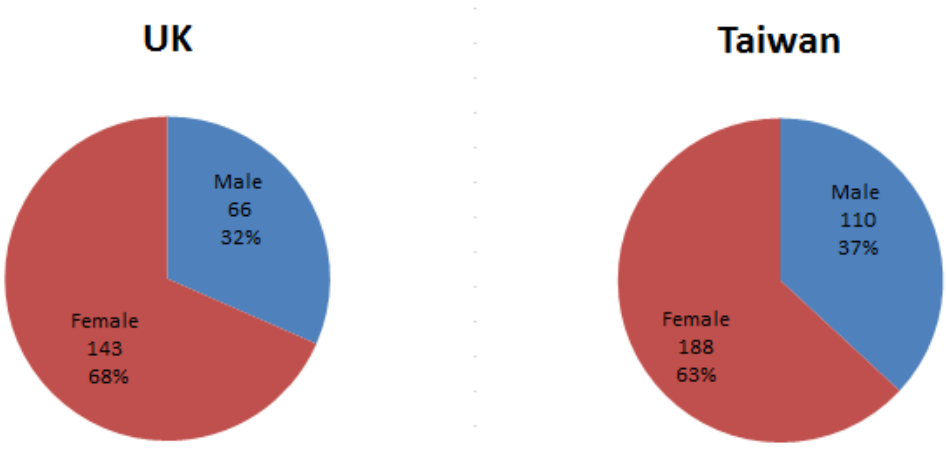
Figure 7.1 Gender Distribution (n=507)



From the figures above, around 65% of the participants are female, and 35% are male. Less than 1% of participants (n=3) did not identify their gender.

Figure 7.2 below shows the gender distribution in two countries.

Figure 7.2 Gender Distribution – UK (n=209) and Taiwan (n=298)

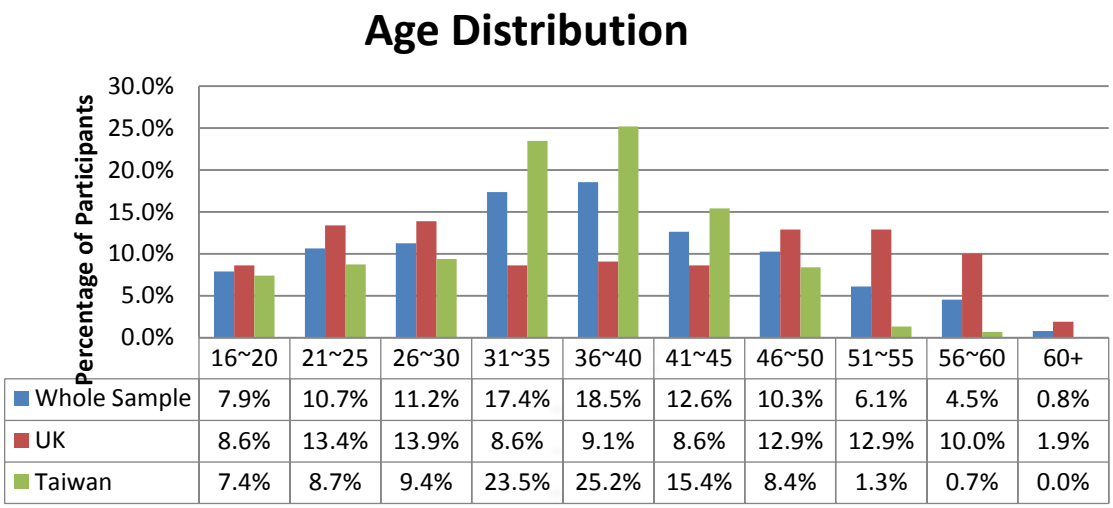


The UK sample consisted of a total of 209 participants: 32% were male and 68% female. Its counterpart, Taiwan, had a total number of 298 participants (3 did not identify their gender), 37% being male and 63% female. Female participants in both countries outweighed their male counterpart. In general, it is fair to say that the gender proportion in each country was similar.

7.2.2 Age

Ten different age groups were set in the questionnaire. It was meant to collect data from participants aged between 16 and 60. There were four participants in the 60+ age group in the UK sample. They were included in the analysis, as the percentage was less than 1%. Figure 7.3 below shows the number of participants in different age groups in the whole sample and in the two countries respectively.

Figure 7.3 Age Distribution of All Participants (n=507)



	16~20	21~25	26~30	31~35	36~40	41~45	46~50	51~55	56~60	60+
Whole Sample	7.9%	10.7%	11.2%	17.4%	18.5%	12.6%	10.3%	6.1%	4.5%	0.8%
UK	8.6%	13.4%	13.9%	8.6%	9.1%	8.6%	12.9%	12.9%	10.0%	1.9%
Taiwan	7.4%	8.7%	9.4%	23.5%	25.2%	15.4%	8.4%	1.3%	0.7%	0.0%

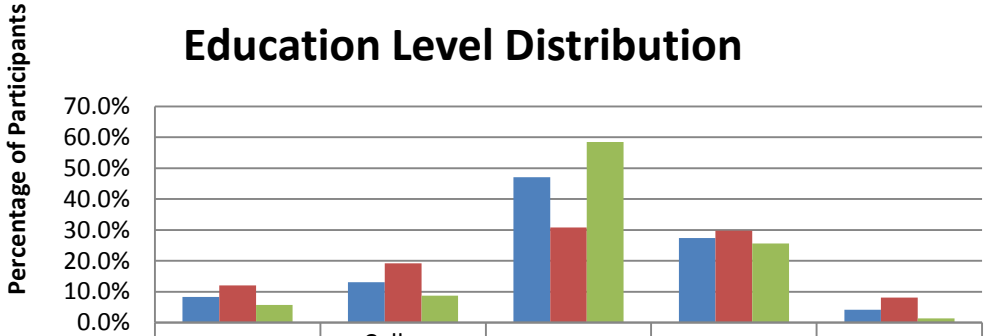
From Figure 7.3, it is shown that the majority of participants for the whole sample and the Taiwanese sample were aged between 31 and 40. However, in the UK sample, there were two peaks in Figure 7.3, which were different from the Taiwanese sample.

The two peaks in Figure 7.3 in the UK sample represented two major age groups participating in the present research: aged between 21 and 30, and between 46 and 55.

7.2.3 Education Levels

Five education levels were included in the questionnaire. The results from the whole sample, UK sample and Taiwan sample are drawn out in Figure 7.4 below.

Figure 7.4 Education Levels for All Participants (n=504)



	High School	College Diploma	Bachelor	Masters	Doctoral
Whole Sample	8.3%	13.1%	47.0%	27.4%	4.2%
UK	12.0%	19.2%	30.8%	29.8%	8.2%
Taiwan	5.7%	8.8%	58.4%	25.7%	1.4%

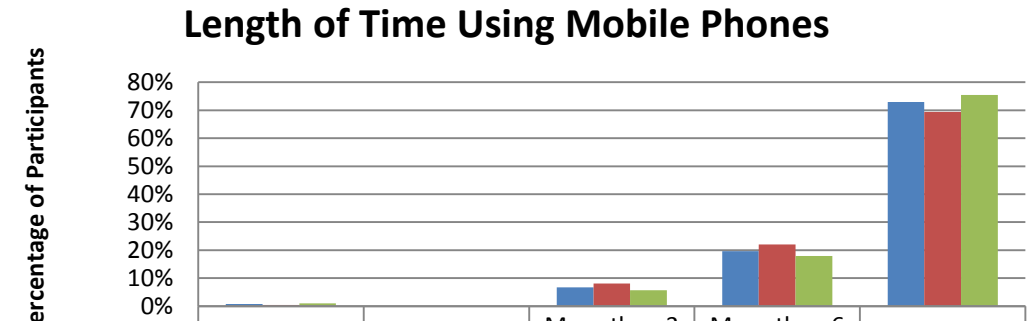
As can be seen from the above figure, bachelor's level was the final level of education of the largest group of participants.

7.2.4 Length of Time Using Mobile Phones

Five different lengths of time using mobile phones were included in the questionnaire. The purpose of this question was to understand the users' experience in using mobile phones, in terms of the length of time of usage. It could further indicate if the participants were mature mobile phone users or not.

The results are shown in Figure 7.5 below.

Figure 7.5 Length of Time Using Mobile Phones (n=510)



	Less than 1 year	More than 1 year but less than 3 years	More than 3 years but less than 6 years	More than 6 years but less than 10 years	More than 10 years
Whole Sample	0.78%	0	6.70%	19.61%	72.91%
UK	0.47%	0	8.14%	22.01%	69.38%
Taiwan	1%	0	5.64%	17.94%	75.42%

As can be seen from Figure 7.5, the majority of users had more than 10 years' experience in using mobile phones. The pattern was similar to the UK and Taiwan samples.

The above sections show the demographic information of the participants in the present research. In the following sections, the procedures of the data analysis are drawn, and the findings of the research are presented at the end of this chapter.

7.3 Data Screening

Before starting the data analyses, some important steps were taken to ensure that the data 1) did not have a large proportion of missing data to cause any potential bias; 2) did not contain outliers to skew the results; and 3) did not contain severely skewed variables (Hair *et al.*, 2010; Tabachnick and Fidell, 2007).

A two-step procedure of data screening was applied. The first step was to check the amount of missing values (Hair *et al.*, 2010; Tabachnick and Fidell, 2007). The data from the online questionnaire did not contain missing values across all testing variables because it was a requirement for completing the online questionnaire. The uncompleted and hence invalid questionnaires, accounting for 22% of the entries, were not entered into the SPSS database. As a result, the cases in the data set had no missing values. Only a few missing data in the demographic information were not meant to be included in the statistical data analysis. As for the paper and pencil questionnaire, only three missing data (out of 46,410) appeared in the testing variables. The percentage of the missing data was very low, so they were replaced by means and would not affect the result (Pallant, 2010).

The second step was to find the outliers from the data (Hair *et al.*, 2010, Tabachnick and Fidell, 2007). Firstly, the data were converted into z scores, of which the means of all variables become zero and the standard deviation became 1. That was to help to detect the outliers which contained absolute z scores greater than 3.0. A descriptive analysis was run from the z score data set, and those variables that contained absolute skewness and/or a kurtosis value greater than 1 needed to be paid attention to. Thirty-three variables contained skewed distribution, but the severity of the skewness varied. The more severe ones, which were determined by their z scores, showed absolute values greater than 3.0. That means the values of the data were more than three standard deviations away from the mean scores, making these data outliers. In order to fix the skewness i.e. non-normal distribution of the data, the data needed to be transformed. The cases which contained outliers were deleted one by one, and they were treated as missing data. At this data cleaning stage, 141 cases were detected as outliers and were deleted from the original data set. As the missing data at this stage had reached 144 (three from the

paper and pencil questionnaire), it still only accounted for less than 0.3% of the whole data. Since the missing data only accounted for a very small percentage of the whole data set, they were replaced by mean scores (Pallant, 2010).

After the two-step procedure of data screening, the final data set was created. All the outliers were removed and all missing data were replaced by mean scores, apart from the missing data in the demographics section. The final data set was ready to be used in the analysis. The present research employed Structural Equation Modelling (SEM) as the statistical tool to perform the analysis on the research model.

7.4 Model Testing: Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) approach was a suitable statistical tool to test the research hypothesis and validity of the research model for the present research. SEM can integrate two different analyses into a single model including confirmatory factor analysis and multiple regression analysis. SEM is designed to test the validity of latent variables. Therefore, it outperforms other multivariate analysis techniques (Hair *et al.,* 2010). Another important reason why SEM was ideal was its inclusion of measurement errors for the latent variables (Hair *et al.*, 2010).

An application of SEM into data analysis consists of two steps. The first step was to confirm the measurement model, using confirmatory factor analysis (CFA) combined with exploratory factor analysis (EFA) if necessary. This step was to confirm the research model i.e. if the proposed research model fitted the observed data, and at the same time to confirm the validity and reliability of the constructs in the model. The second step was to evaluate the structural model, which finds out the relationships between constructs, in order to test the hypotheses (Hair *et al.*, 2010). The

estimation method employed in the present research was maximum likelihood estimation (MLE), which is widely used for estimating structural coefficients.

Determining a good model fit for a model requires a set of tests to produce different indices. The conventional way to determine is to use chi-square (χ^2) statistic as an indication. However, due to the limitations of this statistic, other fit indices were required in confirming the model fit (Bentler and Bonett, 1980). Furthermore, Fornell and Larcker (1981) consider the validity of the measures for the latent variables (constructs) as one of the criteria for evaluating structural equation models. Their approach is to check the convergent, average variance extracted (AVE) and discriminant validity to ensure the measures of the latent variables have satisfactory psychometric properties.

Based on the literature, the present research employed the conventional way (χ^2 statistic), and the proposed and suggested additional fit indices, as well as the validity of the measures to ensure the model fit. The detail is discussed in the following sections.

7.4.1 Goodness-of-Fit Indices

A number of indices are proposed to check the goodness-of-fit of the proposed research model and the model based on the observed data. Many scholars (e.g. Hu and Bentler, 1999; Tabachnick and Fidell, 2007) suggest two ways of evaluating the model fit. The first one is the most common chi-square (χ^2) statistic and *t*-test, and the second one is to choose some fit indices to supplement the χ^2 statistic. Two types of fit indices are proposed: the absolute fit and incremental fit indices.

On the facts, the absolute fit denotes the direct assess of the model fit by comparing the hypothesised model and the observed model. The incremental fit denotes the improvement of the fit of the hypothesised model over a baseline model, of which all the variables are uncorrelated.

The χ^2 statistic is the most common absolute index for directly assessing the model fit, accompanied by the *t*-test statistic. It is to compare the covariance matrices deriving from the theoretical model and the observed model. A χ^2 value shows the minimum discrepancy between two models (the observed model from empirical data, and the theoretical specified model) (Byrne, 2000). A *t*-test is to determine whether or not the discrepancy is significant. Therefore, a significant χ^2 value means the theoretical model does not fit the observed model. In essence, an insignificant χ^2 value is desirable to confirm a good fit. However, the χ^2 statistic has a major limitation which is related to sample sizes. When a sample size is large, the χ^2 value normally also becomes large, hence a significant result; when a sample size is small, the χ^2 value normally also becomes small, hence an insignificant result. Sensitivity to the sizes of the sample leads the χ^2 statistic to two well-known problems – the likelihood of incurring the analogue Type I error and Type II error. The analogue Type I error relates to rejecting a model which is not supposed to be rejected (due to its large sample size). The analogue Type II error relates to accepting an inadequate model (due to its small sample size) (Fornell and Larcker, 1981; van de Schoot *et al.*, 2012). However, the χ^2 values are still reported, almost universally, as an absolute fit index (Martens, 2005; Weston and Gore, 2006).

As mentioned earlier, some scholars (e.g. Bentler and Bonett, 1980; Hu and Bentler, 1999) suggest using other fit indices to supplement the χ^2 statistic. Another absolute

fit index, goodness-of-fit (GFI) index proposed by (Jöreskog and Sörbom, 1982) is also commonly used. GFI is analogous to R^2 in regression, which refers to the variance explained in the whole model. As regards the incremental fit indices, two common used indices are the comparative fit index (CFI: Bentler, 1990) and root mean square error of approximation (RMSEA) (Steiger, 1990; Steiger and Lind, 1980). CFI is to compare a baseline model and the observed model. Both GFI and CFI range from 0 to 1.0, and the values closer to 1.0 indicate a better fit. RMSEA is also an incremental fit index, which is to estimate the lack of fit in a model by comparing it with a saturated model (also known as a perfect model when *df* = 0). Therefore, the smaller the value of RMSEA, the better fit a model is presented. Browne and Cudeck (1993) recommend RMSEA less than 0.05 to be considered as a close fit; in the range between 0.05 and 0.08 to be a fair fit. If the value is greater than 0.1, it is considered to be a poor fit.

Accordingly, the fit indices to show the model fit employed by the present research are the χ^2 statistic, GFI, CFI and RMSEA.

7.4.2 Validity

Construct validity is concerned with the convergent and discriminant validity. Apart from the fit indices, a model fit is demonstrated when these two criteria are satisfied. At the same time, when the convergent and discriminant validity are demonstrated, the unidimensionality of the constructs in the model is also demonstrated, showing that the constructs in the model do not contain cross-loadings.

7.4.2.1 Convergent Validity

Convergent validity (CV), as mentioned in 4.7.3.5.2 (p. 112), means that items for one construct should converge to that specific construct. Each item should be highly

correlated to the other in the same construct. In CFA/SEM, Hair et al. (2010) suggest three ways of estimating the CV among the items in a construct.

The first way is to check the factor loadings. High factor loadings on a factor in the factor analysis mean that the items converge to that factor (construct). It is suggested that the standardised loading estimates should be 0.50 or above, and all factor loadings should be statistically significant (Hair *et al*., 2010).

The second way is to check the average variance extracted (AVE). AVE is the mean of variance extracted for the items on one construct. An AVE with 0.50 or higher is good. It is calculated based on the factor loadings of the latent construct, and it is required to be presented in each measurement model (Hair *et al*., 2010).

The third way for estimating a good convergent validity is to check the construct reliability. Reliability is the degree to which the instrument measures have internal consistency. So, a high reliability of a construct also increases the estimation of the convergent validity of the construct. As mentioned in 4.7.3.5.2, reliability is normally assessed by Cronbach's alpha statistics, which were used for the EFA in the present research. In SEM models, the construct reliability is calculated in a different way. However, the cut-off values of the reliability estimates are not so much different when different reliability coefficients are employed. Reliability estimates are good when they are 0.70 or higher. Reliability between 0.60 and 0.70 can be acceptable given that all other constructs' validity is good (Hair *et al.*, 2010).

The reliability tests of the scales of the present research in SEM were composite reliability (CR) based on Fornell and Larcker (1981). They were conducted and are presented in Table 7.12 (p. 220) in the next section.

In the present research, most of the items in the final measurement model were adherent to factor loadings 0.50 or above. Only one item from a well-established scale did not meet this requirement (see Table 7.12). This issue is addressed in 7.4.3.1 (p. 200). The AVEs for each construct were all satisfactory (see Table 7.12). The reliability of each latent variable was acceptable, each was above 0.60.

7.4.2.2 Discriminant Validity

The opposite to the concept of the convergent validity, discriminant validity is to demonstrate the distinction between constructs. The present research employed a rigorous test to determine the distinction, by comparing the AVE values with the squared inter-construct correlations (SIC) between two constructs (Hair *et al.,* 2010). A discriminant validity is demonstrated when a construct AVE is larger than the SICs with other constructs.

Both the convergent and discriminant validity for the model were assessed and demonstrated. They are presented in Tables 7.12 (p. 220) to 7.15 (p. 221).

7.4.3 Specification of the Measurement Model

The purpose of this section is to check if the hypothesised model fits the observed data. As the research model consisted of four constructs, and each construct consisted of several sub-constructs, represented by several measures, it was suggested that the four individual constructs (called a sub-model for each individual construct) were checked by running a CFA test first. After the model fit of each sub-model was confirmed, the measurement model for the present research containing the four constructs was run. The measurement model was specified accordingly.

As mentioned, a CFA test was confirmed when the model fit indices were satisfactory, and the convergent validity (CV) and discriminant validity (DV) were demonstrated. Therefore, the model fit indices CV and DV were checked in each CFA test. Also, as the whole sample consisted of participants from two countries, an individual CFA test for each country was required. The whole sample CFA test was confirmed only when the CFA tests in both countries were satisfied. Therefore, the results of three CFA tests in each sub-model and the whole model (research model) are reported in each section.

The process of the specification of each sub-model is detailed below, followed by the whole measurement model specification.

7.4.3.1 Validity and Reliability of the Cultural Dimension Scale

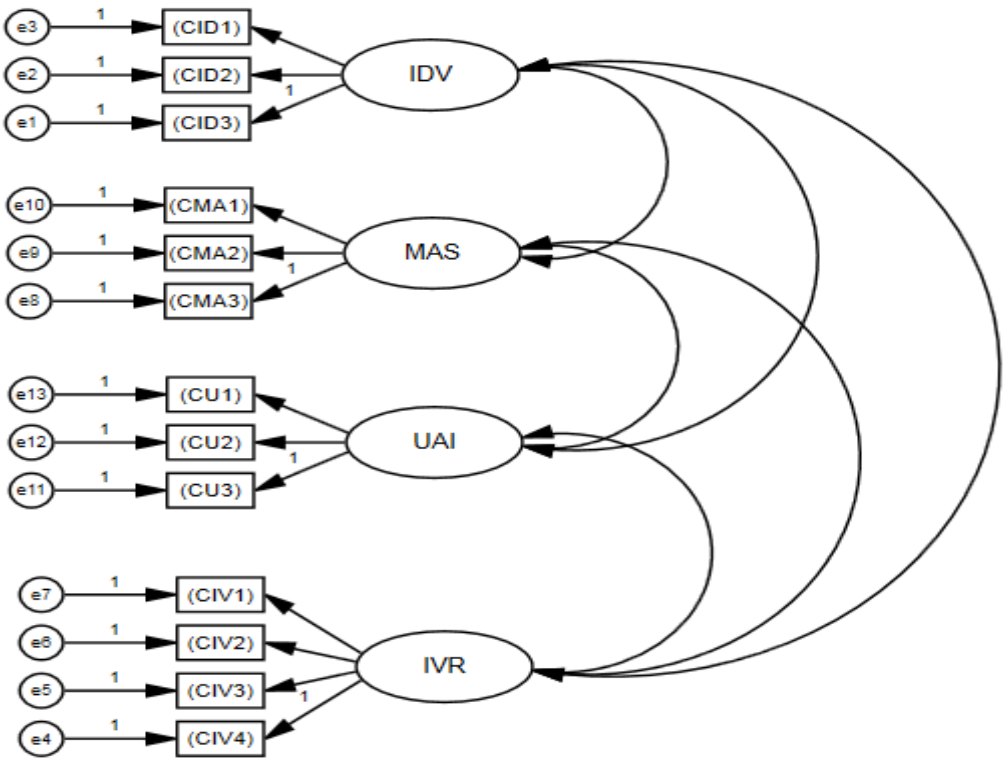
The first part to report is the cultural dimension construct. This construct was tested by the Cultural Value Scale (CVS). CVS is to test Hofstede's five cultural dimensions, which are Individualism/Collectivism (IDV), Masculinity/Femininity (MAS), Uncertainty Avoidance (UAI), and Long/Short-Term Orientation (LTO). However, PDI and LTO were not included in the present research as the literature did not support their inclusion in this research context. Therefore, PDI and LTO were excluded.

The scale for testing Hofstede's five cultural value dimensions in the present research was adopted from the 26-item CVSCALE (Donthu and Yoo, 1998; Yoo *et al.*, 2001; Yoo *et al.*, 2011). As the present research aimed to test a few theories in one questionnaire, it was decided to reduce the items from the CVSCALE scale in order to produce a shorter questionnaire but still be able to test the all dimensions. As a result, three items for each construct, making it a total of 15 items from

CVSCALE, were adopted to measure Hofstede's IDV, MAS, UAI, PDI and LTO cultural dimensions. However, in the confirmatory factor analysis stage, only IDV, MAS and UAI were included (9 items). The reasons to adopt CVSCALE instead of Hofstede's own scale, and how to reduce the items of the CVSCALE, were addressed in 6.4.4.3 (p. 181).

As CVSCALE does not include Hofstede's sixth cultural dimensions (Indulgence/Restraint, abbr. IVR), the items for testing this scale in the present research were adopted from Hofstede's own scale, VSM 08 (see 6.4.4.1, p. 178). There were four items for testing this cultural dimension, making a total of 13 items to be included in the CFA model test. The cultural dimension CFA model is shown below:

Figure 7.6 The CFA model for the Cultural Value Measures



The cultural dimension scale showed a good fit to χ^2=128.025, *df*=59, *p*=.000, GFI=0.963, CFI=0.929, RMSEA=0.048 (N=510). However, all the IVR items showed low factor loadings (<0.5), and the composite reliability was below 0.60 (CR=0.15). This means that the reliability of the scale was not acceptable. As a result, the four items of IVR were excluded. One item in IDV also showed an unacceptable factor loading (0.388), but the overall CR was acceptable (0.64). Under the circumstances, deleting the low factor loading item (IDV1) was an option, which led the latent construct with only two items left. Although a minimum of two items for a latent construct is acceptable (Kenny and McCoach, 2003; Kline, 2011), the preferable number of items per latent construct is three (Ding *et al.*, 1995; Hair *et al.*, 2010). It was decided to keep IDV1 for the further analysis. After deleting the four items of IVR, another CFA was run, and the scale showed a good fit to χ^2=57.453, *df*=24, *p*=.000, GFI=0.976, CFI=0.961, RMSEA=0.052 (N=510). However, MAS had an unacceptable reliability (CR=0.38) in the Taiwan sample, so three items in MAS were removed from the further analysis. Therefore, after the first run of CFA, nine items (three constructs) were excluded.

Only two cultural dimensions (IDV and UAI) were left for the further analysis. The new indices for the 2-construct cultural dimension scale showed a good fit to χ^2=10.772, *df*=8, *p*=.000, GFI=0.993, CFI=0.995, RMSEA=0.026 (N=510) and the indices for the UK and Taiwan models were all acceptable. From their factor loadings (only one below 0.50), AVEs and composite reliabilities (>0.60) as shown in Table 7.1 below, the convergent validity was demonstrated.

Table 7.1 Standard Path Coefficients (SPC), AVEs and CRs of the Revised Cultural Value Scale

	Whole Sample		UK		Taiwan	
	UAI	IDV	UAI	IDV	UAI	IDV
UAI1	0.74		0.79		0.68	
UAI2	0.71		0.67		0.74	
UAI3	0.66		0.64		0.65	
IDV1		0.40		0.58		0.38
IDV2		0.75		0.81		0.68
IDV3		0.66		0.64		0.78
AVE	**0.50**	**0.39**	**0.47**	**0.49**	**0.40**	**0.48**
CR	**0.75**	**0.64**	**0.72**	**0.74**	**0.65**	**0.73**
Means	3.86	3.14	3.62	3.11	4.02	3.15
Standard Deviation	0.77	0.81	0.81	0.79	0.70	0.82

The table below (Table 7.2) shows that the discriminant validity was demonstrated by comparing each construct's AVE and the squared inter-construct correlations (SIC) with other constructs. As long as AVE is larger than any SIC, the discriminant validity is demonstrated (Hair *et al.*, 2010).

Table 7.2 Discriminant Validity

	Whole Sample		UK		Taiwan	
Construct	1	2	1	2	1	2
1. Uncertainty Avoidance	**.50**		**.47**		**.40**	
2. Individualism /Collectivism	.15	. **39**	.10	**.49**	.18	**.48**

*The diagonal figures in bold are the AVEs, the lower diagonal figures are the Squared Inter-construct Correlations (SIC).

The re-specified model containing six items for two cultural dimensions was used in the subsequent whole measurement model specification in 7.4.3.5 (p. 217).

7.4.3.2 Validity and Reliability of The Technology Paradox Measures

The second part to report from the scale is the technology paradox (TP) scale. Due to the absence of any suitable measure for this context, a new scale containing a total of 56 items was developed to test eight paradoxes. These constructs were Empowerment/Enslavement, Independent/Dependent, Fulfil Needs/Create Needs, Competence/Incompetence, Planning/Improvisation, Engaging/Disengaging, Public/Private, Illusion/Disillusion. Seven to eight items were developed to measure each construct.

An EFA was suggested running to ensure the factor structure before a CFA was run. The results of the EFA for the scale are reported in the following section.

7.4.3.2.1 Exploratory Factor Analysis (EFA)

Some indicators need to be presented to ensure the EFA result. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were checked at the start of the initial factor analysis. The former is the Measure of Sampling Adequacy (MSA), which verifies the sampling adequacy for the analysis; the latter checks if the correlation between items is significantly large enough for factor analysis (Hair *et al.*, 2010; Tabachnick and Fidell, 2007). These two figures are presented before showing the results of the factor analysis, as they determine whether a factor analysis is appropriate.

The KMO value for the TP scale was .89, which was above the acceptable limit of .50, and the value was actually 'great' according to Field (2009). Bartlett's test of sphericity was significant ($\chi^2(1540) = 10{,}216.72$, $p < .001$). Given these two indicators, the principal component analysis (PCA), a method to perform EFA, was conducted with all 56 items, with varimax rotation.

The PCA was divided into two stages. In each stage, a reliability test was run to check if the factors extracted were reliable. In the first stage, ten factors were extracted after a 3-step of PCA, and 13 items were deleted in different steps due to either cross-loadings, or items in the factors containing less than three items, or coefficient values below 0.40. The reliability tests of the factors extracted showed that two factors contained unacceptable reliability (α<.60). Therefore, the six items in these two factors with unacceptable α values were deleted. The second stage of PCA contained only one step. Eight factors were extracted and their α values of the reliability test were all acceptable (α >.60).

A total of 19 statements were deleted in the 2-stage of PCA. Finally, a clear factor structure was presented with eight factors containing 37 items. The results of the factor loadings and the reliability tests are shown in Table 7.3 below.

Table 7.3 TP Measures: the Results of EFA and Reliability Test

Items/Factors	F 1	F 2	F 3	F 4	F 5	F 6	F 7	F 8
Factor 1 Empowerment (α =.85)								
Mobile phones allow me to be reached by friends and family [EM2]	.76							
Mobile phones allow me to communicate with friends and/or work colleagues when I need them [FN2]	.75							
Mobile phones allow me to get in touch with people wherever they are. [ID3]	.75							
Mobile phones allow me to reach out when I need help. [FN4]	.68							
Mobile phones allow me to contact people much easier than before. [EM1]	.66							
Mobile phones allow me to make calls anywhere I am. [ID1]	.61							
Mobile phones allow me to answer all queries quickly. [CM1]	.60							
Mobile phones allow me to communicate in the way I prefer (e.g. texting, emailing, calling etc.) [EM3]	.49							
Factor 2 Competence (α =.84)								
Mobile phones allow me to use my time effectively. [CM3]		.75						
Mobile phones help me improve my time management.[PL2]		.75						
Mobile phones help me organise my schedules. [PL1]		.72						
Mobile phones help me complete my work/study-related tasks efficiently. [CM2]		.66						
Mobile phones allow me to refine changes to scheduled plans. [PL4]		.61						
Mobile phones allow me to deal with time-critical matters. [ID2]		.60						
Mobile phones allow me to be well-informed. [FN3]		.53						
Factor 3 Dependence (α =.80)								
Mobile phones make me feel anxious when I don't have them to rely on [DE1]			.73					
Mobile phones frustrate me if I cannot reach someone instantly. [DE3]			.73					
Mobile phones make me anxious if friends do not respond to me in time. [DE2]			.72					
Mobile phones make me feel tense if I cannot check on them constantly. [DE4]			.68					
Mobile phones make me feel safe. [FN1]			.58					
Factor 4 Disillusion (α =.75)								
Mobile phones are not useful to reach people at all times. [DIL2]				.80				
Mobile phones do not allow people to respond wherever they are. [DIL1]				.78				
Mobile phones are not easy to use everywhere. [DIL3]				.76				
Factor 5 Create Needs (α =.64)								
Mobile phones require purchasing devices /software to make them work better (e.g. additional chargers, headsets, applications etc.) [CN3]					.65			
Mobile phones require insurance and data back-up. [CN2]					.65			
Mobile phones require spending extra money on phone accessories. [CN1]					.65			
Mobile phones constantly make me alert to incoming messages. [EN2]					.51			
Factor 6 Illusion (α =.76)								
Mobile phones make people expect they can communicate with others anytime. [IL4]						.78		
Mobile phones make people expect they can respond anytime. [IL1]						.76		
Mobile phones make people expect they can reach others wherever they are. [IL2]						.70		
Factor 7 Improvisation (α =.64)								
Mobile phones make people change their scheduled plans constantly.[IMP1]							.76	
Mobile phones make people plan things much less than before. [IMP3]							.69	
Mobile phones make people lose track on updates of their plans. [IMP2]							.62	
Mobile phones distract me from what I am doing. [DEN2]							.58	
Factor 8 Public (α =.62)								
Mobile phones enable me to have personal communication with others in public. [PU1].								.74
Mobile phones allow me to turn public places into my own world for my private communication. [PU4]								.63
Mobile phones allow me to take important calls in public. [PU2]								.59
Variance explained (%)	22.6	8.2	7.1	4.9	4.5	3.7	3.3	2.8

Table 7.3 (above) contains the factor loadings for the rotated PCA solution and Cronbach's α values for each extracted factor. The PCA revealed the presence of eight factors with eigenvalues exceeding one. Five factors (Factor 1, 2, 3, 4 and 6) showed strong reliability ($\alpha \geq 0.70$); three factors (Factor 5, 7 and 8) had acceptable α values ($0.70 > \alpha \geq 0.60$). The eight factors extracted in combination explained 57.45% of the variance.

From Table 7.3, it can be seen that Factor 4, 6 and 8 (highlighted in red) corresponded exactly to the paradox constructs: Factor 4 represented disillusion, Factor 6 represented illusion, and Factor 8 represented public. Three factors (Factor 3, 5 and 7, highlighted in blue) contained similar properties. They contained a main idea from the items, but one different item, which was designed for another construct, was also involved. As the statements designed for different constructs had the lowest coefficient loading in these factors, these three factors did not need to be renamed (Hair *et al*., 2010). Therefore, Factor 3 represented dependence. Factor 5 represented create needs, and Factor 7 represented improvisation.

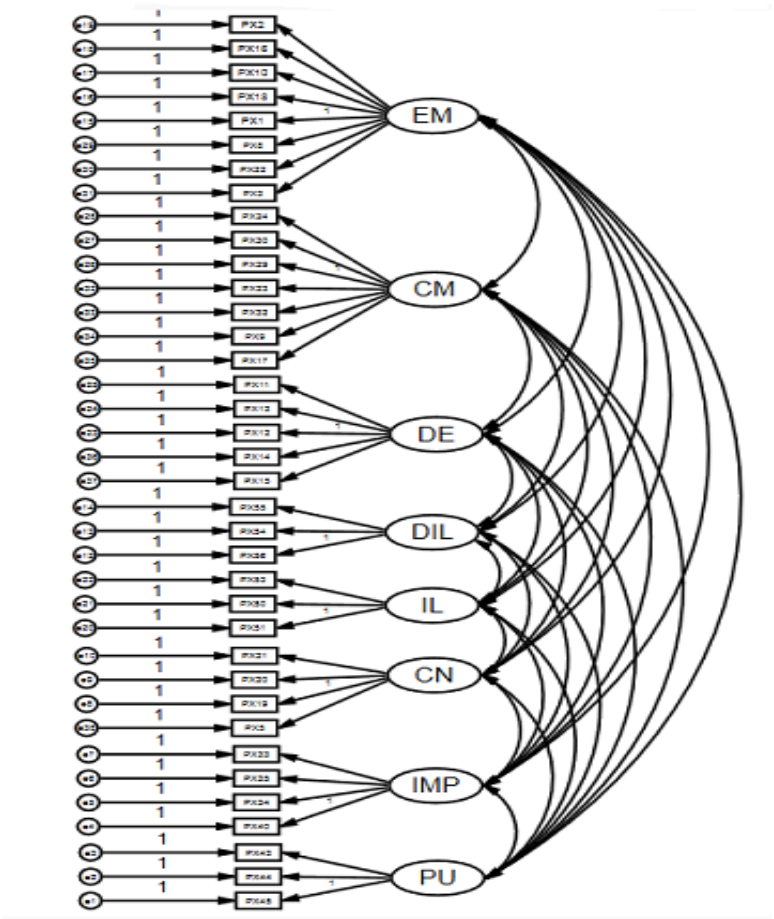
The remaining two factors (Factor 1 and 2) represented an overlap of statements designed to represent different constructs. Therefore, they had to be renamed based on the items that have large loadings on this factor as mentioned before. As a result, Factor 1 represented empowerment, and Factor 2 represented competence.

To sum up, the 37 items representing eight constructs were included in CFA for assessing the model fit.

7.4.3.2.2 Assessing the TP Measurement Model

The TP model was assessed by running a CFA model, which is shown in Figure 7.7 below.

Figure 7.7 The CFA Model for Technology Paradox Measures



The TP sub-model specification was conducted by confirming the convergent validity (CV) acceptable AVEs, factor loadings and CRs) and discriminant validity (DV) of the constructs. The factor loadings of the items and the CR in each construct were checked and the unacceptable items and constructs had to be removed. Then the modification indices (MI) were checked in order to improve the model fit. The MIs, which were calculated in the AMOS software, showed that the amount of χ^2 value could be reduced by adding or deleting some particular paths (Hair *et al.*, 2010). As CFA forced items to load on their designated latent variables, zero loadings on other

latent variables were assumed. In reality, there might be some smaller but nonzero loadings between items and items, and items and other latent variables. According to Mulaik and Millsap (2000), assuming these items to have zero loadings on other latent variables can contribute to an unnecessary lack of fit. Therefore, freeing those items which were forced to have zero loadings to other latent variables helps to improve the model fit. The way to free such items is to check the modification indices (MI) from the output. The MIs are calculated based on estimating all possible parameters which are not estimated in the model. Therefore, the MI indices show how strong these items are associated with other constructs. The greater the values, the higher the possibility indicated of cross-loadings between the items and the constructs (Hair *et al*., 2010). Therefore, based on Mulaik and Millsap (2000) and Hair et al. (2010), high values of MI indicate problematic items which may affect the model fit. By excluding some items which are indicated containing high cross-loadings to other latent variables, the model can be re-specified to achieve a better fit.

In the TP sub-model re-specification process, the IMP construct (PX33, PX35, PX40) was detected due to having low factor loadings leading to an unacceptable CR, and PX9 had a low factor loading (0.489). Nine items (PX3, PX5, PX8, PX11, PX15, PX17, PX22, PX29, PX32) were found having high MI values that indicated cross-loadings to other constructs. Therefore, a total of 13 items were deleted in the re-specification. The re-specified model, which was based on samples from the two countries, showed good fit indices. The CFA results are presented in Table 7.4 below.

Table 7.4 TP CFA Model Fit Indices

	Chi-square	*df*	RMSEA	GFI	CFI
Whole Sample	141.878	109	0.024	0.969	0.987
UK	129.843	109	0.030	0.935	0.976
Taiwan	107.813	109	0.000	0.959	1.000

Based on the model fit indices, the CV and DV were subsequently checked. The AVEs, factor loadings and CRs were all satisfied in the whole sample model and the individual country models. These are demonstrated in Tables 7.5 to 7.8 below.

Table 7.5 Convergent Validity and Reliability of the Technology Paradox Scale: Standard Path Coefficients, Construct Reliability and AVEs

	Whole Sample					UK Sample					Taiwan Sample				
	EM	CM	DE	IL	DIL	EM	CM	DE	IL	DIL	EM	CM	DE	IL	DIL
PX1	0.60					0.62					0.65				
PX2	0.74					0.68					0.79				
PX10	0.70					0.77					0.64				
PX16	0.78					0.76					0.80				
PX18	0.65					0.59					0.74				
PX23		0.65					0.64					0.66			
PX24		0.81					0.82					0.81			
PX30		0.67					0.75					0.61			
PX12			0.74					0.64					0.81		
PX13			0.70					0.74					0.69		
PX14			0.63					0.60					0.62		
PX50				0.70					0.66					0.73	
PX51				0.72					0.68					0.73	
PX53				0.73					0.75					0.75	
PX54					0.73					0.52					0.79
PX55					0.76					0.69					0.74
PX56					0.64					0.51					0.63
AVE	**0.49**	**0.51**	**0.48**	**0.52**	**0.50**	**0.47**	**0.54**	**0.44**	**0.49**	**0.33**	**0.52**	**0.48**	**0.50**	**0.54**	**0.52**
CR	**0.83**	**0.75**	**0.73**	**0.76**	**0.75**	**0.82**	**0.78**	**0.70**	**0.74**	**0.60**	**0.85**	**0.73**	**0.75**	**0.78**	**0.76**

Table 7.6 Discriminant Validity of the TP Measures: The Whole Sample

	1	2	3	4	5	Means	Standard Deviations
1 Empowerment(EM)	**.49**					6.08	0.76
2 Competence(CM)	.22	**.75**				4.33	1.34
3 Dependence(DE)	.05	.10	**.73**			3.53	1.45
4 Disillusion(DIL)	.01	.01	.02	**.76**		5.55	0.98
5 Illusion(IL)	.39	.16	.15	.08	**.75**	4.69	1.42

*The diagonal figures in bold are the AVEs, the lower diagonal figures are the Square Inter-construct Correlations (SIC).

Table 7.7 Discriminant Validity of the TP Measures: The UK Sample

3	1	2	3	4	5	Means	Standard Deviations
1 EM	**.82**					5.97	0.73
2 CM	.16	**.78**				4.23	1.42
3 DE	.13	.13	**.70**			3.27	1.41
4 DIL	.00	.00	.01	**.74**		5.55	0.93
5 IL	.17	.02	.03	.00	**.60**	3.97	1.22

*The diagonal figures in bold are the AVEs, the lower diagonal figures are the Square Inter-construct Correlations (SIC).

Table 7.8 Discriminant Validity of the TP Measures: The Taiwan Sample

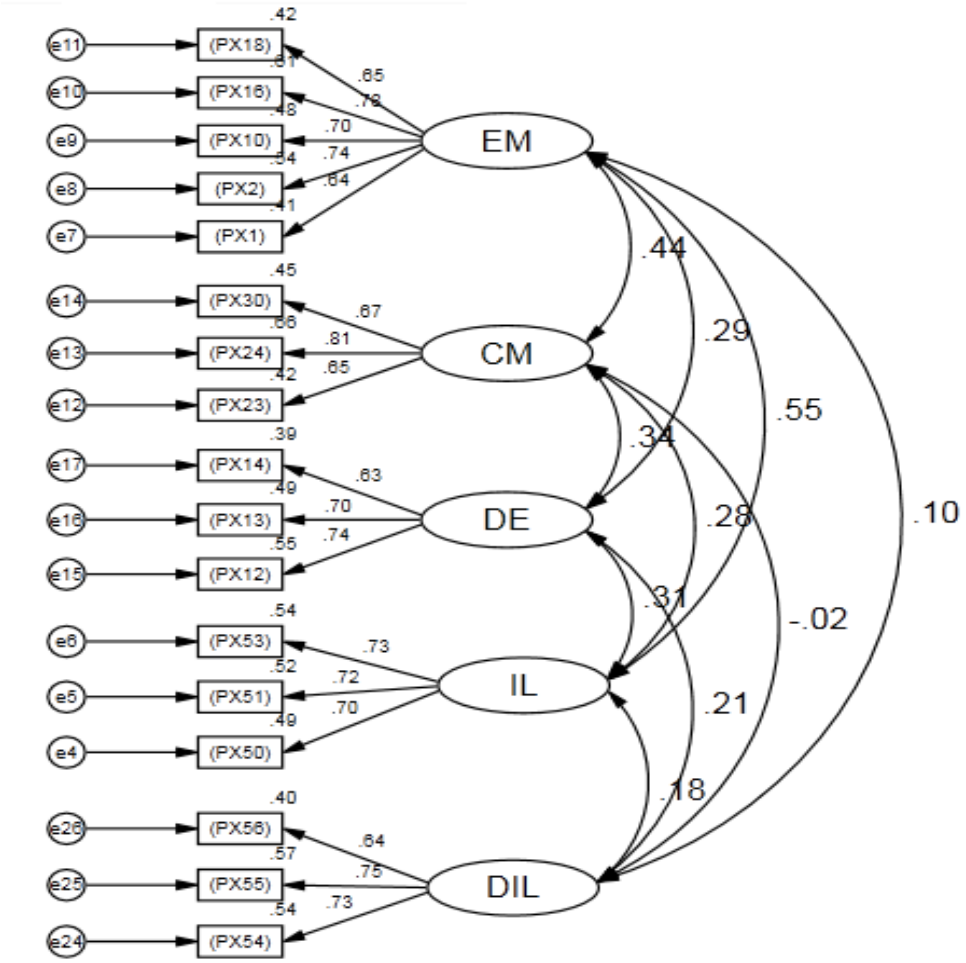
3	1	2	3	4	5	Means	Standard Deviations
1 EM	**.85**					6.15	0.76
2 CM	.20	**.73**				4.40	1.27
3 DE	.09	.12	**.75**			3.72	1.45
4 DIL	.01	.00	.04	**.78**		5.55	1.02
5 IL	.30	.08	.10	.03	**.76**	5.18	1.33

*The diagonal figures in bold are the AVEs, the lower diagonal figures are the Square Inter-construct Correlations (SIC).

Therefore, the measurement model for the TP scale was confirmed to use five constructs (17 items), which were empowerment/enslavement (EM, five items), competence/incompetence (CM, three items), dependent/independence (DE, three items), disillusion (DIL, three items), and illusion (IL, three items). The results of the

TP CFA model for the whole samples are shown in Figure 7.8 below. The re-specified model for the TP scale was used in the subsequent whole measurement model re-specification in 7.4.3.5.

Figure 7.8 Results of the TP CFA (Whole Sample, n=510)



7.4.3.3 Validity and Reliability of the Coping Strategy Measures

The third part of the analysis was to assess the validity and reliability of the coping strategy scale. A total of 12 items was developed to measure consumers' coping strategies. The first measure was the avoidance strategy, containing sub-constructs neglect, abandonment, and distancing. The second one was the confrontation strategy, containing sub-constructs accommodation, partnering and mastering.

Similar to the TP scale, the CFA model did not show an acceptable fit, so an EFA was run to confirm the factor structure first.

The KMO value for this construct was .79, which was above the acceptable limit of .50, and the value was actually 'good' according to Field (2009). Bartlett's test of sphericity was significant ($\chi^2(66) = 1{,}244.96$, $p<.001$). Given these two indicators, factor analysis was conducted with all 12 items.

There were two stages of principal component analysis (PCA). The result of the first PCA contained three steps. In the first step, four factors were extracted, and two negative coefficient values were observed in Factor 1. The items contained negative coefficient values that were reverse coded and a PCA was run again. One item containing a cross-loading coefficient was deleted. The result of the PCA showed a clear factor structure with four extracted factors. Factor 1 contained a combination of avoidance (neglect) and confrontation (mastering). Factor 2 corresponded to confrontation (accommodation); Factor 3 was a combination of avoidance (distancing and abandonment); and Factor 4 corresponded to confrontation (partnering).

A reliability test was run to test the four factors. It turned out that three factors (Factor 2, 3 and 4) contained unacceptable reliabilities ($\alpha < .60$), as shown in Table 7.9 below. These factors had to be deleted.

Table 7.9 Coping Strategy Measures: The Results of the EFA and Reliability Test

Items/Factors	F 1	F 2	F 3	F 4
Factor 1 Confrontation Mastering (α =.80)				
I am a master of mobile phone functions.	.85			
I always know how to use all the functions in my mobile phone(s).	.82			
I ignore learning the additional functions of the mobile phones.*(r)	.78			
I only use basic functions of the mobile phones such as making calls.*(r)	.63			
Factor 2 Confrontation Accommodation (α =.45)				
I am fine with bad reception.		.83		
I am fine with not reaching people when I want to.		.64		
Factor 3 Avoidance Distancing (α =.32)				
I have my own rules for when I should not use my mobile phone.			.68	
I switch my mobile phone off when I don't want to be reached.			.64	
I do not write long messages from my mobile phone(s).			.55	
Factor 4 Confrontation Partnering (α =.48)				
My mobile phone reflects my personality.				.74
My mobile phone is an essential part of my life.				.68
Variance explained (%)	**28.4**	**13.3**	**10.3**	**9.1**

*(r): reverse coded

The second stage of the PCA began with deleting the above-mentioned seven items in Factor 2, 3 and 4. Only one factor remained in this factor structure at the end. This factor: confrontation mastering (Factor 1 above) demonstrated a very high reliability (α = .80).

The second stage of PCA revealed the presence of one factor with eigenvalues exceeding 1, and this factor explained 63.7% of the variance. The Cronbach's α value was high (α=0.80), showing a high internal consistency. The factor contained four items, which was a combination of one sub-construct from the avoidance strategy (neglect), and one sub-construct from the confrontation strategy (mastering). As only one construct was left in this scale, and the scale was designed to be a bipolar one, the scale for this construct represented a unidimensional scale, where score 1=avoidance, score 7=confrontation.

The CFA was not required to test this model as it only contained one construct. The results of this scale are included in the whole measurement model specification, in 7.4.3.5.

7.4.3.4 Consumer Loyalty

The last part to report is the result of the consumer loyalty scale. There were four items in this scale, and the items were adapted from the extant research mentioned in Chapter 6, *Instrument Development and Data Collection (p. 158)*.

As it was a single construct sub-model, a CFA was not required. However, an EFA was run to ensure the factor structure. The KMO value for this construct was .79, which was above the acceptable limit of .50, and the value was actually 'good' according to Field (2009). Bartlett's test of sphericity was significant ($\chi^2(6) = 990.17$, $p < .001$). Given these two indicators, factor analysis was conducted with all four items.

The results of the PCA and the reliability test for this scale are shown in Table 7.10.

Table 7.10 Consumer Loyalty Measures: The Results of the EFA and Reliability Test

Factor 1: Consumer Loyalty (α =.86)	**Factor 1**
I will encourage friends and relatives to make further use of mobile phones	.88
I will recommend applications and functions to others who seek advice.	.87
I will say positive things about mobile phones to others	.84
I will consider a more advanced mobile phone to replace my existing phone.	.78
Variance explained (%)	**71.1**

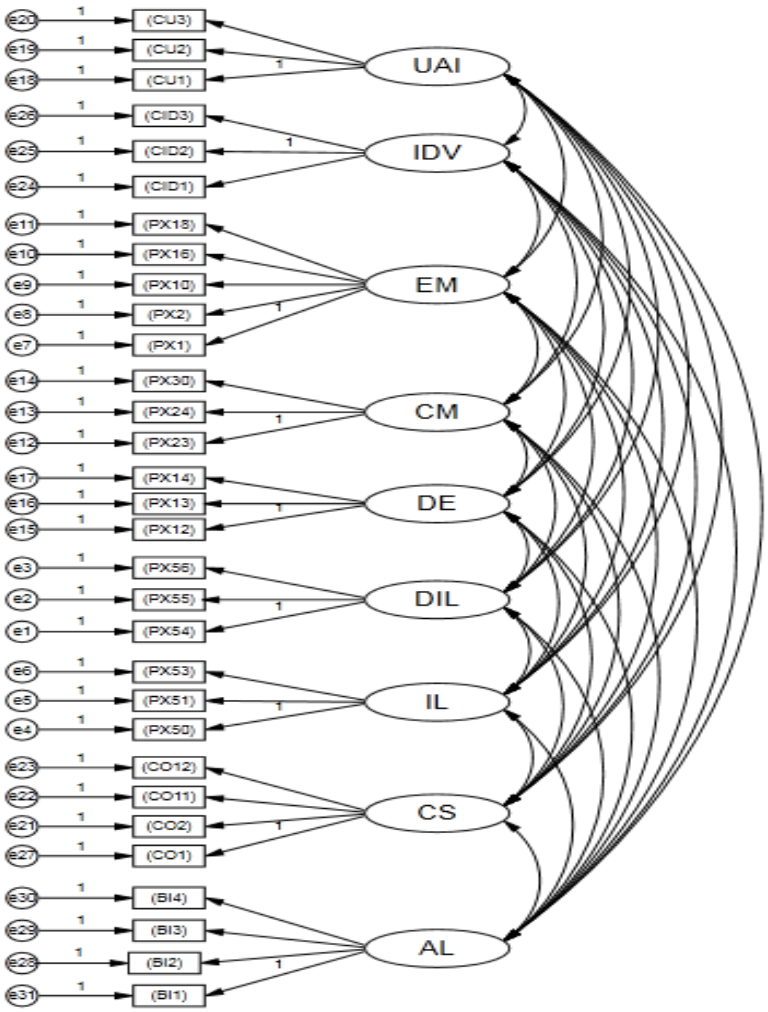
Table 7.10 (above) contains the factor loadings for the rotated PCA solution and Cronbach's α value for the extracted factor. The PCA revealed the presence of one factor with eigenvalues exceeding 1, and this factor explained 71.1% of the variance.

From the reliability test, it showed that this construct had a high internal consistency (α=.86). Therefore, the four items were included in the further analysis.

7.4.3.5 Confirming the Validation of the Whole Measures

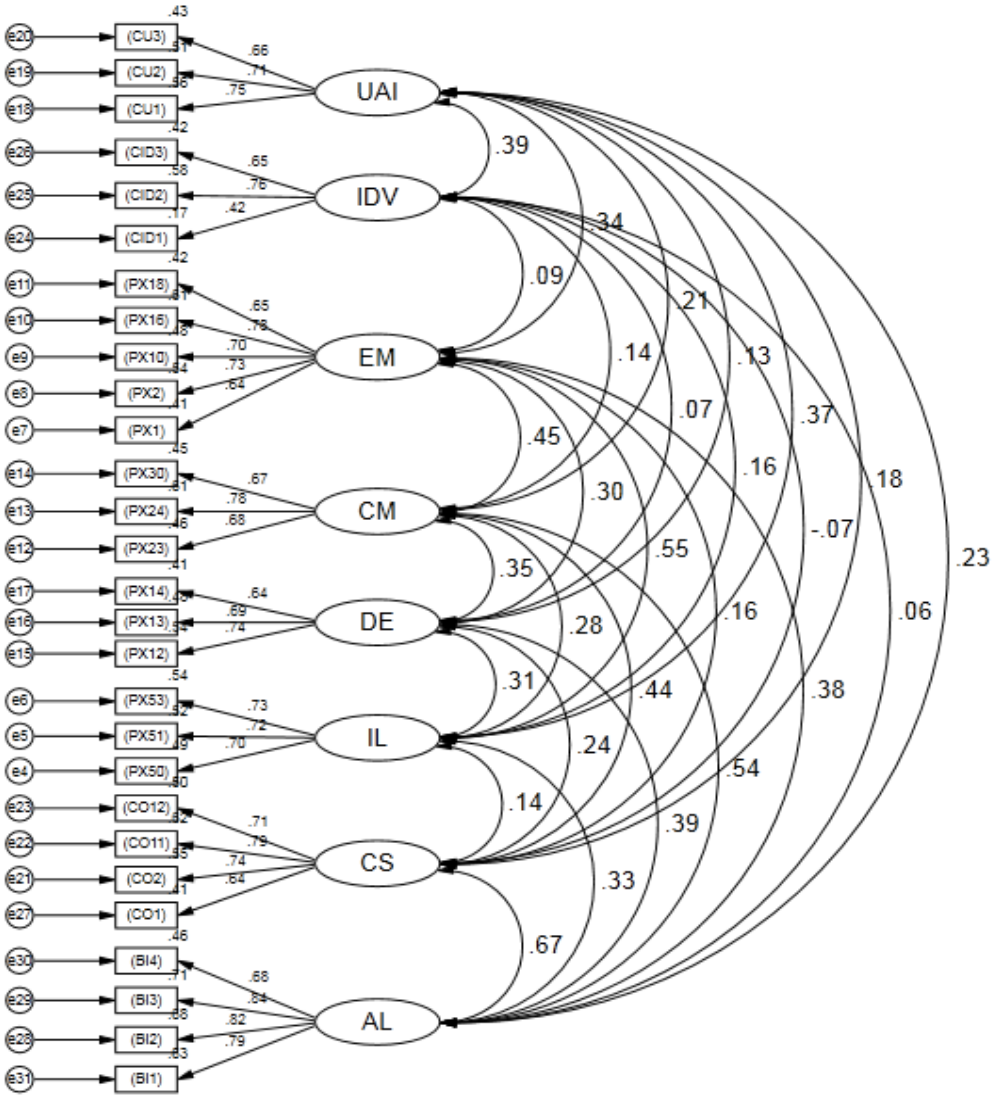
After the re-specification for the four sub-models, a total of 31 items (six items from the cultural dimension scale, 17 items from the technology paradox scale, four items from the coping strategy scale, and four items from the consumer scale) were included in the measurement model, representing 31 observed variables. The CFA model for the whole measurement is shown in Figure 7.9 below.

Figure 7.9 The CFA Model for the Whole Measures



As the model was not specified in the first CFA test, some re-specification was conducted. Following the rules of model re-specification mentioned in 7.4.3, convergent and discriminant validity, the CRs and AVE of each construct, and the MIs were checked in three sample models (the whole sample, the UK and the Taiwan sample) based on the same factor structure. The DIL construct showed an unacceptable CR (0.59) in the UK model. Therefore, three items for DIL were excluded. The subsequent CFA model (Figure 7.10 below) showed a good model fit.

Figure 7.10 The Results of the Measurement Model (Whole Sample)



The fit indices (see Table 7.11) and the factor loadings, AVEs and CRs for each construct (see Table 7.12) which demonstrated the CV, and the SICs and AVEs (see Table 7.13-15) which demonstrated the DV in three sample groups, are shown in the following tables.

Table 7.11 Results of the CFA and Fit Indices Across Three Samples

	Chi-square	*df*	RMSEA	GFI	CFI
Whole sample	627.932	322	0.043	0.915	0.939
UK	447.344	322	0.043	0.870	0.939
Taiwan	517.361	322	0.045	0.890	0.937

Table 7.12 CFA Results for the Three Sample Groups: Standardised Path Coefficient and t-Values

		Whole Sample (n=510)			UK (n=209)			Taiwan (n=301)		
	Items	Standardised Path Coefficients (Factor Loadings)	Composite Reliability	AVE	Standardised Path Coefficients (Factor Loadings)	Composite Reliability	AVE	Standardised Path Coefficients (Factor Loadings)	Composite Reliability	AVE
Individualism/Collectivism	IDV2	0.76	0.65	0.39	0.79	0.72	0.47	0.69	0.65	0.39
	IDV3	0.65			0.65			0.74		
	IDV1	0.42			0.60			0.40		
Uncertainty Avoidance	UAI1	0.75	0.75	0.50	0.78	0.74	0.49	0.69	0.73	0.47
	UAI2	0.71			0.68			0.72		
	UAI3	0.66			0.64			0.65		
Empowerment	PX1	0.64	0.83	0.49	0.62	0.82	0.47	0.65	0.85	0.52
	PX2	0.73			0.68			0.78		
	PX10	0.70			0.78			0.64		
	PX16	0.78			0.75			0.80		
	PX18	0.65			0.59			0.73		
Competence	PX23	0.68	0.75	0.51	0.67	0.78	0.55	0.67	0.74	0.48
	PX24	0.78			0.80			0.78		
	PX30	0.67			0.74			0.62		
Dependence	PX12	0.74	0.73	0.48	0.63	0.70	0.43	0.80	0.75	0.50
	PX13	0.69			0.70			0.69		
	PX14	0.64			0.65			0.63		
Expectation	PX50	0.70	0.76	0.52	0.66	0.74	0.49	0.74	0.79	0.54
	PX51	0.72			0.68			0.74		
	PX53	0.73			0.75			0.73		
Coping Strategies	CO1	0.64	0.81	0.52	0.73	0.84	0.57	0.58	0.79	0.48
	CO2	0.74			0.80			0.67		
	CO11	0.79			0.78			0.79		
	CO12	0.71			0.70			0.72		
Consumer Loyalty	BI1	0.79	0.87	0.62	0.83	0.82	0.62	0.75	0.88	0.64
	BI2	0.82			0.85			0.80		
	BI3	0.84			0.80			0.88		
	BI4	0.68			0.64			0.76		

Table 7.13 Descriptive Statistics, Bivariate Correlations and AVEs: The Whole Sample

	Mean	SD	1	2	3	4	5	6	7	8
1. IDV	3.14	0.81	**0.39**	0.39***	0.10	0.14*	0.07	0.16*	-0.07	0.06
2. UAI	3.86	0.77	0.15	**0.50**	0.34***	0.21***	0.13*	0.38***	0.18**	0.23***
3. EM	6.08	0.76	0.01	0.11	**0.49**	0.45***	0.30***	0.55***	0.16**	0.38***
4. CM	4.33	1.34	0.02	0.05	0.20	**0.51**	0.35***	0.28***	0.44***	0.55***
5. DE	3.53	1.45	0.00	0.02	0.09	0.12	**0.48**	0.31***	0.24***	0.39***
6. IL	5.55	0.98	0.03	0.14	0.30	0.08	0.10	**0.52**	0.14*	**0.33*** **
7. CS	4.33	1.48	0.00	0.03	0.03	0.19	0.06	0.02	**0.52**	0.67***
8. AL	4.60	1.59	0.00	0.05	0.15	0.30	0.15	0.11	0.44	**0.62**

Table 7.14 Descriptive Statistics, Bivariate Correlations and AVEs: The UK Sample

	Mean	SD	1	2	3	4	5	6	7	8
1. IDV	3.12	0.79	**0.47**	0.32***	-0.08	0.11	-0.04	0.06	-0.03	0.03
2. UAI	3.62	0.81	0.10	**0.49**	0.19*	0.13	-0.05	0.25**	0.18*	0.19*
3. EM	5.97	0.73	0.01	0.04	**0.47**	0.40***	0.35***	0.41***	0.18*	0.47***
4. CM	4.23	1.42	0.01	0.02	0.16	**0.55**	0.38***	0.13	0.41***	0.54***
5. DE	3.27	1.41	0.00	0.00	0.12	0.15	**0.43**	0.16	0.34***	0.46***
6. IL	5.54	0.93	0.00	0.06	0.17	0.02	0.03	**0.49**	0.21*	0.34***
7. CS	4.07	1.59	0.00	0.03	0.03	0.17	0.11	0.04	**0.57**	0.67***
8. AL	4.56	1.66	0.01	0.03	0.22	0.30	0.21	0.12	0.44	**0.62**

Table 7.15 Descriptive Statistics, Bivariate Correlations and AVEs: The Taiwan Sample

	Mean	SD	1	2	3	4	5	6	7	8
1. IDV	3.15	0.82	**0.39**	0.43***	0.17*	0.15	0.11	0.25**	-0.09	0.08
2. UAI	4.02	0.70	0.18	**0.47**	0.42***	0.25**	0.17*	0.51***	0.06	0.24**
3. EM	6.15	0.76	0.03	0.18	**0.52**	0.47***	0.23**	0.63***	0.11	0.30***
4. CM	4.40	1.27	0.02	0.06	0.22	**0.48**	0.32***	0.39***	0.43***	0.53***
5. DE	3.72	1.45	0.01	0.03	0.05	0.10	**0.50**	0.39***	0.10	0.34***
6. IL	5.55	1.02	0.06	0.26	0.39	0.15	0.15	**0.54**	0.08	0.32***
7. CS	4.51	1.38	0.01	0.00	0.01	0.19	0.01	0.01	**0.48**	0.67***
8. AL	4.63	1.55	0.01	0.06	0.09	0.28	0.11	0.10	0.45	**0.64**

Remark 1:

IDV=Individualism/Collectivism **UAI**=Uncertainty Avoidance **EM**=Empowerment/Enslavement

CM=Competence/Incompetence **DE**=Dependence/Independence **IL**=Illusion/Disillusion

CS=Coping Strategies **AL**=Consumer Loyalty

Remark 2:

The diagonal figures in bold are the AVEs, the lower diagonal figures are the square of the correlations (SIC – Squared Inter-Construct correlation), the upper diagonal figures are the correlations.

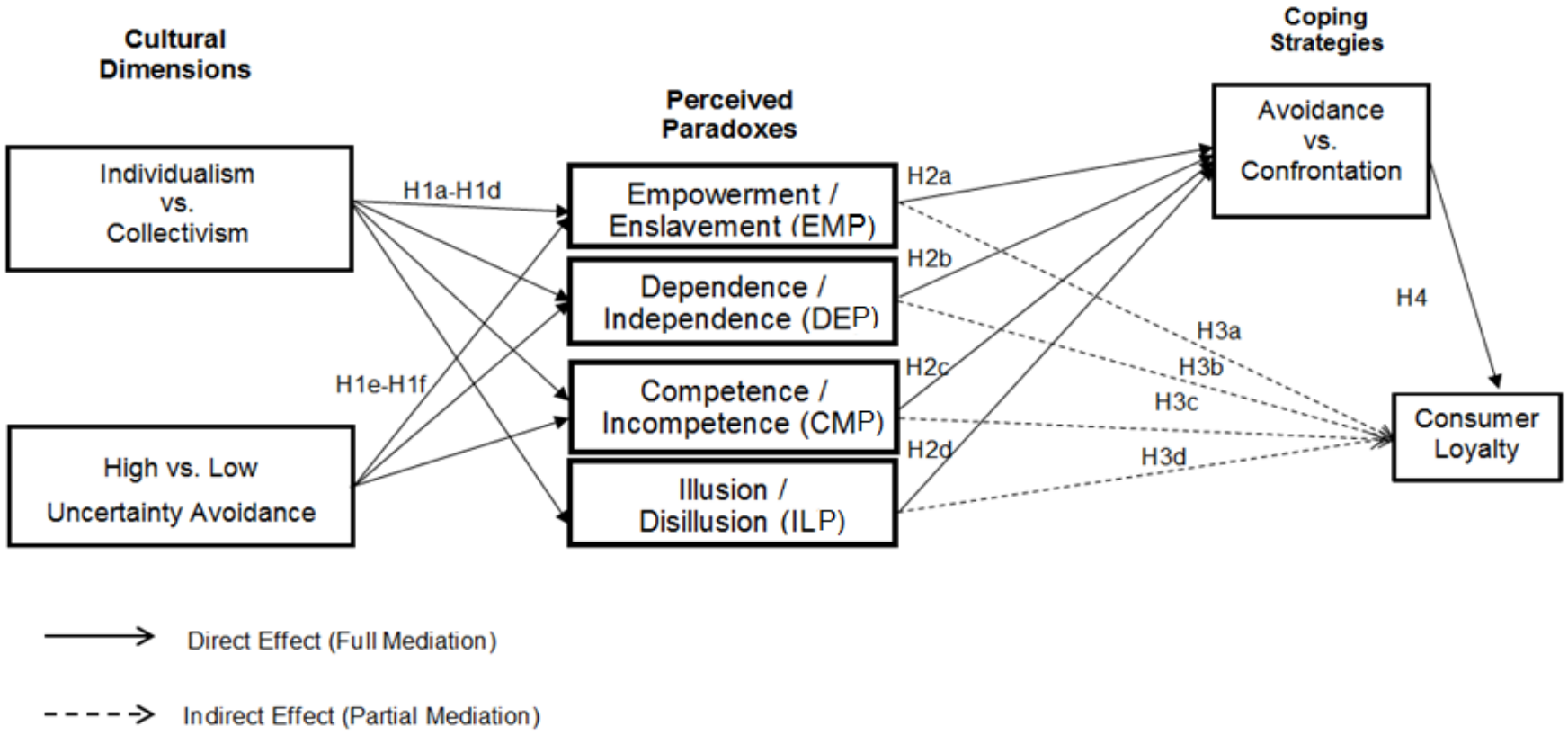
*Correlation is significant at the 0.05 level (two-tailed)

**Correlation is significant at the 0.01 level (two-tailed)

***Correlation is significant at the 0.001 level (two-tailed)

Based on the model fit indices, convergent and discriminant validity of this measurement model, it is concluded that the model with eight constructs was confirmed in the three sample groups. Since the measurement model was re-specified, the research model needed to be revised based on the re-specification. The revised research model is presented in Figure 7.11, and it is detailed in the following section.

Figure 7.11 The Revised Research Model



7.4.4 Revising the Research Model

The research hypotheses based on the literature review were presented in Chapter 5, *Conceptual Framework (p. 123)*. There were 40 hypotheses based on the literature review under the present research context. After the EFA and CFA tests, some constructs in the present research were deleted. Consequently, some hypotheses were not able to be tested and some also needed to be revised. The hypotheses affected after the EFA and CFA tests are discussed below.

7.4.4.1 Cultural Dimension Constructs

There were 24 hypotheses based on four different cultural dimensions. As masculinity/femininity (MAS) dimension, and indulgence vs. restraint (IVR) dimension were excluded from the analysis after the CFA tests, hypotheses relating to these three dimensions could not be tested. As a result, eleven hypotheses were excluded (see 7.4.4.5, p. 225).

7.4.4.2 Mobile Technology Paradox Constructs

As mentioned in the operationalisation of the paradoxes in 5.4.2 (p. 143), a paradox was perceived based on a positive and a counter negative attribute (called 'construct' in this chapter) of the mobile technology. After the EFA and CFA tests, some constructs were excluded from the analysis. They are enslavement (EN), independence (ID), fulfilling needs (FN), creating needs (CN), incompetence (ICM), planning (PL), improvisation (IMP), engaging (ENG), disengaging (DEN), public (PU), private (PR) and disillusion (DIL). Therefore, hypotheses made based on these constructs might not be tested. However, all items for the constructs were bipolar; the remaining construct (EM, CM, DE and IL) could represent four paradox scales to measure empowerment/enslavement paradox (EMP), competence/incompetence paradox (CMP), dependence/independence paradox (DEP) and illusion/disillusion paradox (ILP). Taking empowerment/enslavement as an example, score 1 = strongly

enslaved, 7= strongly empowered. Accordingly, hypotheses based on these four paradoxes remained in the research. Hypotheses made based on creating needs/fulfilling needs; planning/improvisation; engaging/disengaging; and private/public paradoxes had to be removed from the research model.

7.4.4.3 Coping Strategy Constructs

The two constructs – avoidance and confrontation – in the coping strategy were merged into one construct. Therefore, the coping strategy construct could only be tested based on a uni-dimensional construct: score 1 = avoidance, score 7 = confrontation, as mentioned in 7.4.3.3 (p. 213). There were ten hypotheses related to the paradoxes and coping strategy, and one hypothesis for the coping strategy and consumer loyalty. Six hypotheses were deleted due to the exclusion of the paradox constructs, and the remaining hypotheses were revised based on the merger of the coping strategy construct.

7.4.4.4 Consumer Loyalty Construct

This construct remained in the analysis. Therefore, any hypotheses made based on the remaining constructs and consumer loyalty construct could be tested.

7.4.4.5 The Revised Research Hypotheses

Subsequent to the revised research model, some hypotheses were deleted and some were revised and re-organised. According to the revised model (Figure 7.11, p. 223) above, the new order of the hypotheses is listed below.

Hypotheses related to cultural dimensions and perceptions of the paradoxes of mobile technology:

H1a: Individualism / Collectivism dimension and perceived empowerment /

enslavement paradox are related.

H1b: Individualism / Collectivism dimension and perceived competence / incompetence paradox are related.

H1c: Individualism / Collectivism dimension and perceived independence / dependence paradox are related.

H1d: Individualism / Collectivism dimension and illusion / disillusion paradox are related.

H1e: Uncertainty avoidance and perceived empowerment/enslavement paradox are related.

H1f: Uncertainty avoidance and perceived competence/incompetence paradox are related.

H1g: Uncertainty avoidance and perceived independence/dependence paradox are related.

Hypotheses related to the perceptions of paradoxes of mobile technology and coping strategies and consumer loyalty:

H2a: Perceived empowerment/enslavement paradox and coping strategies are related.

H2b: Perceived competence/incompetence paradox and coping strategies are related.

H2c: Perceived independence/dependence paradox and coping strategies are related.

H2d: Perceived illusion/disillusion paradox and coping strategies are related.

H3a: Coping strategies mediate the effects of perceived empowerment / enslavement paradox on consumer loyalty.

H3b: Coping strategies mediate the effects of perceived competence /

incompetence paradox on consumer loyalty.

H3c Coping strategies mediate the effects of perceived independence / dependence paradox on consumer loyalty.

H3d: Coping strategies mediate the effects of perceived illusion / disillusion paradox on consumer loyalty.

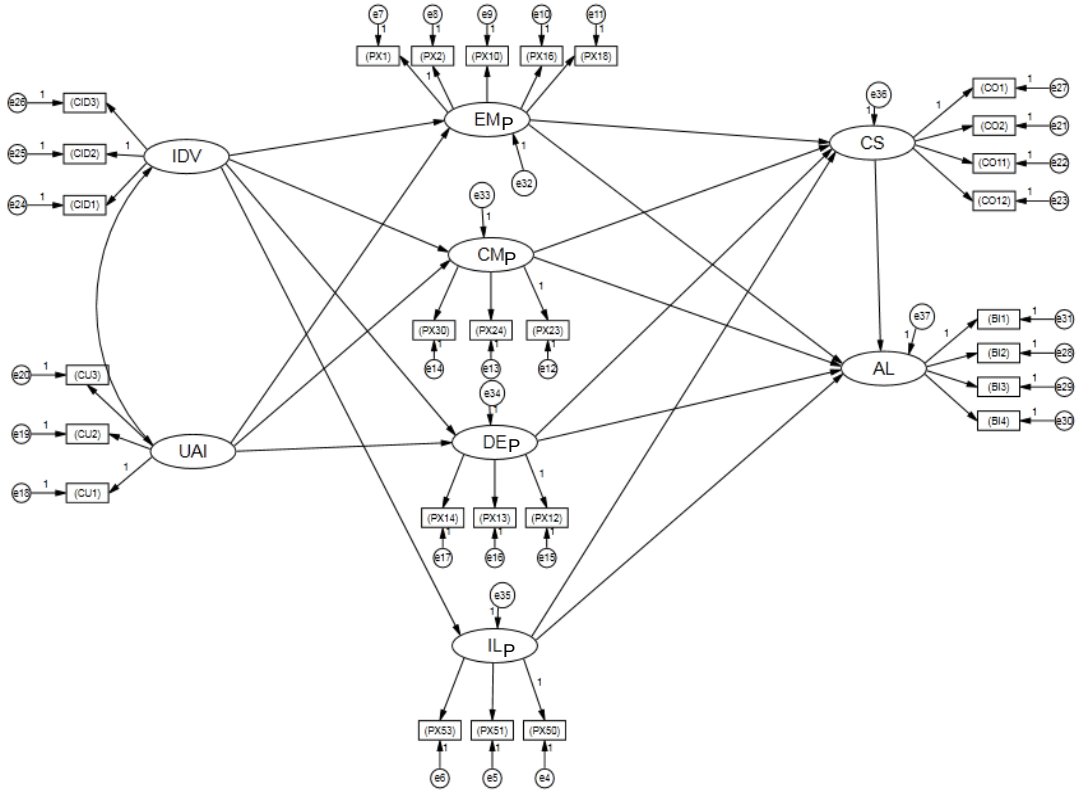
Hypotheses related to coping strategies and consumer loyalty:

H4: Coping strategies and consumer loyalty are related.

7.4.4.6 Assessment of Structural Model

The structural model needed to be specified based on the revised hypothesised relationships. Replacement of the two-headed arrows to single-headed arrows to specify the dependence relationships, means that the analysis was moved from specifying correlational relationships to dependence relationships (Hair *et al.*, 2010). As there were direct and indirect effects hypothesised in the present research, they were analysed by full mediation models (for direct effects) and partial mediation model (for indirect effects) in the structural model analyses. The following figure (Figure 7.12) illustrates the partial mediation model using AMOS software. As a full mediation model is nested in the partial mediation model, it can be seen from the following figure but without the single-headed arrows from perceived paradoxes (EMP, CMP, DEP, ILP) to AL. The structural equations analyses were based on the structure from this figure.

Figure 7.12 The Partial Mediation Model



The results of structural equations analyses (for both direct and indirect effects) for the three samples all showed support for the validity of the measures (see Appendix X, SEM results). The results also showed acceptable fits in all models. As a result, the hypothesised paths/relationships could be examined. They are discussed separately in the following sections.

7.4.5 Testing the Revised Hypotheses

Hypotheses can be tested when the structural models are confirmed to be valid with acceptable model fits. Therefore, the model fit indices are presented first in each sample group. The results of the hypothesis testing of the whole sample are presented first, followed by the UK and then the Taiwan sample.

7.4.5.1 Results from the Whole Sample

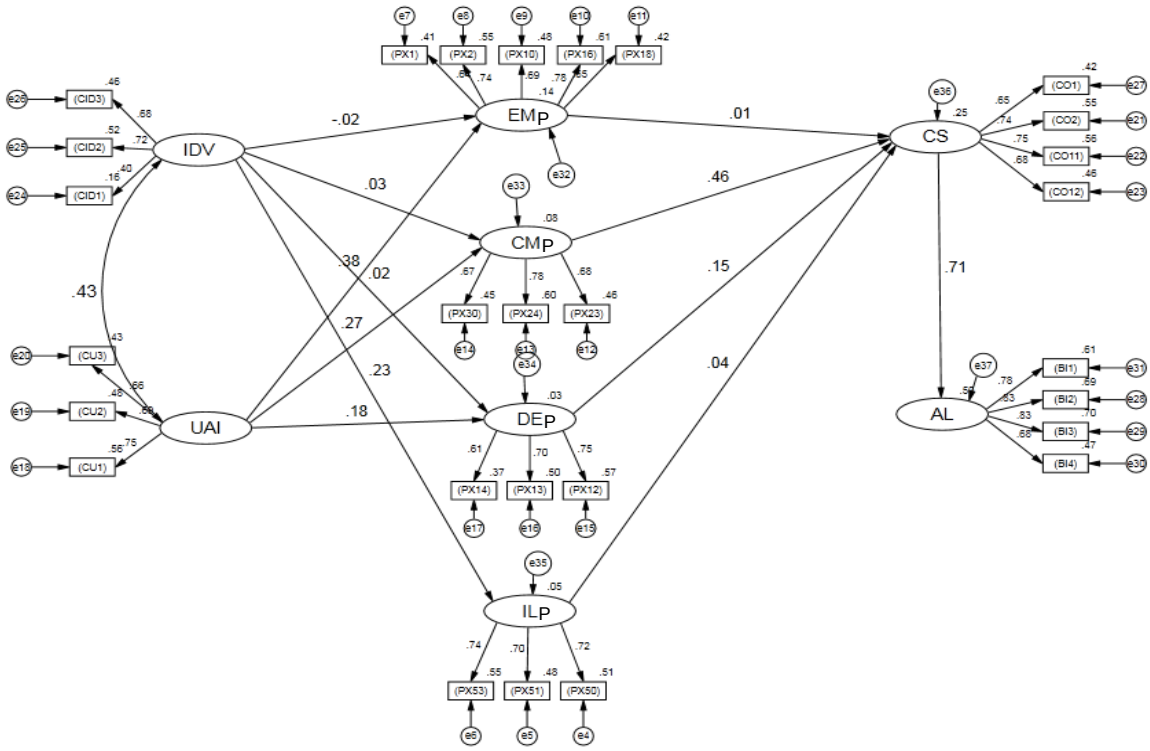
The overall structural model fit for the full mediation and partial mediation models for the whole sample model appeared to be acceptable (See Table 7.16 below), and it can be seen that the partial mediation model had a better fit than the full mediation model.

Table 7.16 Fit Indices for Full and Partial Mediation Models (Whole Sample)

	Chi-Square	*df*	RMSEA	GFI	CFI
Full Mediation	933.806	337	0.059	0.871	0.882
Partial Mediation	855.706	333	0.056	0.889	0.886

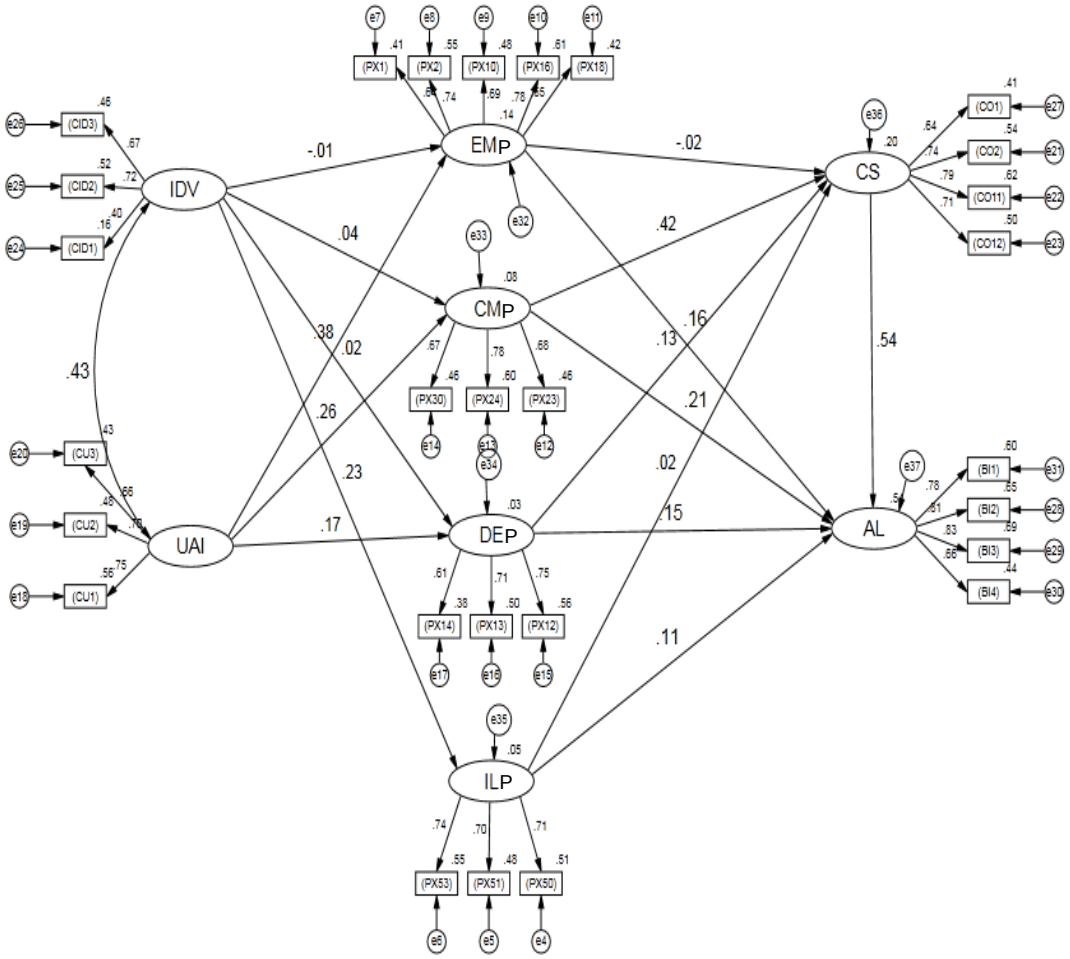
Figure 7.13 (full mediation) and Figure 7.14 (partial mediation, p. 230) show the results of the structural model analyses. Table 7.17 below (p. 231) provides a summary of the hypothesis testing.

Figure 7.13 SEM Results (Whole Sample – Full Mediation)



Full Mediation Model (Whole Sample)
N=510

Figure 7.14 SEM Results (Whole Sample – Partial Mediation)



Partial Mediation Model (Whole Sample)
N=510

Table 7.17 Results of the Hypothesis Testing (Whole Sample, n=510)

Hypothesis	Hypothesised Relationship	Full Mediation		Partial Mediation	
		Standardised path coefficient	*t*-value	Standardised path coefficient	*t*-value
H1a	IDV→EMP (EM/EN Paradox)	- 0.017	- 0.26	- 0.013	- 0.20
H1b	IDV→CMP (CM/ICM Paradox)	0.033	0.47	0.038	0.55
H1c	IDV→DEP (DE/IDE paradox)	0.018	0.25	0.022	0.32
H1d	IDV→ILP (IL/DIL paradox)	0.227	3.57***	0.229	3.61***
H1e	UAI→EMP	0.384	5.52***	0.381	5.49***
H1f	UAI→CMP	0.266	3.83***	0.263	3.79***
H1g	UAI→DEP	0.178	2.55*	0.174	2.50*
H2a	EMP→Coping Strategy (CS)	0.010	0.21	- 0.024	- 0.47
H2b	CMP→CS	0.459	7.31***	0.419	6.70***
H2c	DEP→CS	0.154	2.88**	0.126	2.31*
H2d	ILP→CS	0.044	0.86	0.018	0.35
H4	CS→ AL	0.707	11.29***	0.538	8.93***
H3a	EMP→AL			0.157	3.69***
H3b	CMP→AL			0.208	4.04***
H3c	DEP→AL			0.150	3.33***
H3d	ILP→AL			0.112	2.60**
Model Fit Statistics					
χ^2		933.806		855.706	
df		337		333	
RMSEA		0.059		0.056	
GFI		0.871		0.889	
CFI		0.882		0.896	
Variance explained (R^2)					
Empowerment/Enslavement(Paradox)		0.14		0.14	
Competence/Incompetence (Paradox)		0.08		0.08	
Dependence/Independence(Paradox)		0.04		0.03	
Illusion/Disillusion (Paradox)		0.05		0.05	
Coping Strategy		0.25		0.20	
Consumer Loyalty		0.50		0.54	

*p<0.05; **p<0.01; ***p<0.001;

Based on the above table, the discussion of each hypothesis is addressed in the following sections.

Cultural Dimensions vs. Paradoxes of Mobile Technology

There were seven hypotheses related to the relationships between cultural dimensions and the perceived paradoxes, which are H1a to H1f in 7.4.4.5 (p. 225).

From Table 7.17 above, it is shown that the first three hypotheses (H1a, H1b and H1c) were not supported. The last four hypotheses, H1d (t=3.57, p<0.001), H1e (t=5.52, p<0.001), H1f (t=3.83, p<0.001) and H1g (t=2.55, p<0.05) were supported, with positive coefficients. H1d shows that individualism/collectivism (IDV) was associated with the perceived illusion/disillusion paradox (ILP) of consumers. That is, the more collectivistic/individualistic consumers (score 1 = individualism, score 7= collectivism), the more strongly/weakly they perceived illusion (score 1=disillusion, 7=illusion). H1e, H1f and H1g show that uncertainty avoidance (UAI) was associated with the perceived empowerment/enslavement paradox (EMP) (score 1 = enslavement, 7 = empowerment) (H1e); competence/incompetence paradox (CMP) (score 1 = incompetence, 7 = competence) (H1f); and dependence/independence paradox (DEP) (score 1=dependence, 7=independence) (H1g). That is, the higher the uncertainty avoidance consumers have, the more likely they are to feel competent and empowered by mobile phones, and feel dependent on them too. On the other hand, consumers who have a lower uncertainty avoidance cultural dimension are more likely to feel enslaved and incompetent, but independent, because of mobile phones.

Paradoxes of Mobile Technology vs. Coping Strategies

There were four hypotheses related to these two constructs, which are H2a to H2d in 7.4.4.5 (p. 225). From Table 7.17 above, it is shown that only H2b (t=7.31, p<0.001) and H2c (t=2.88, p<0.01) were supported, with positive coefficients. H2a and H2d were not supported. That shows that the perceived competence/incompetence and perceived dependence/independence paradoxes were associated with coping strategies. The higher/lower the perceptions of competence and dependence, the more likely that consumers would employ the confrontation/avoidance strategy (score 1=avoidance, score 7=confrontation), and vice versa.

Coping Strategies vs. Consumer Loyalty

The hypothesis for the two constructs was considered to be related, referring to H4 in 7.4.4.5. From Table 7.17, it is shown that the hypothesis was supported. H4 (*t*=11.29, p<0.001) was supported with a positive coefficient. That means that consumers who were more likely to employ the confrontation strategy, rather than the avoidance strategy, were more likely to stay with this technology. On the other hand, those who were more likely to emply the avoidance strategy were less likely to stay with this technology.

The Mediating Effect of Coping Strategies on the Relationship between Perceived Paradoxes and Consumer Loyalty

The relationships between the perceived paradoxes and consumer loyalty were hypothesised to be mediated by coping strategies. Coping strategies as a mediator was shown in the partial mediation model, which is drawn in Figure 7.14. The partial mediation model also showed a better overall fit (χ^2 = 855.71, *df*=333, RMSEA=0.056, GFI=0.889, CFI=0.896). Because the full mediation model is nested in the partial mediation model, a χ^2 difference test was performed to determine if the partial mediation model is indeed better than the full mediation model. The test results show that the partial mediation model provided a better fit than the full mediation model ($\Delta\chi^2$ = 78.10, Δdf = 4, p < 0.01).

Four paradoxes - perceived empowerment/enslavement (EMP_ (H3a: *t*=3.69, p<0.001), competence/incompetence (CMP) (H3b: *t*=4.04, p<0.001), dependence/independence (DEP) (H3c: *t*=3.33, p<0.001), and the illusion/disillusion (ILP) paradox (H3d: *t*=2.60, p<0.05) - were shown to have a direct impact on consumer loyalty. However, the relationships between the perceived empowerment/enslavement paradox, the perceived illusion/disillusion paradox and coping strategies were not supported (H2a: t=0.47, p>0.05; H2d: t=0.35, p>0.05).

Based on the results of H2a-H2d, H4 and H3a-H3b, it can be seen that coping strategies partially mediated the relationships between perceived competence/incompetence, the dependence/independence paradox and consumer loyalty. Also, coping strategies did not have any mediating effect on the relationships between perceived empowerment/enslavement, illusion/disillusion paradox and consumer loyalty.

7.4.5.1.1 Results from the Two Countries

The results of the UK and Taiwan samples were slightly different to those of the whole sample. A report and comparison of the results from the UK and Taiwan provides an insight into the mobile technology market in these two countries.

Firstly, the mean scores and the standard deviation of each construct for the UK and Taiwan are presented in Table 7.18. These results provide guidelines to better understand the research model.

Table 7.18 UK and Taiwan Construct Mean and Standard Deviation Scores

	UK (n=209)		Taiwan (n=301)	
	Mean	SD	Mean	SD
IDV	3.11	0.79	3.15	0.82
UAI*	**3.62**	0.81	**4.02**	0.70
Empowerment (EM)*	**5.97**	0.73	**6.15**	0.76
Competence (CM)	4.23	1.42	4.40	1.27
Dependence (DE)*	**3.27**	1.41	**3.72**	1.45
Expectation (IL/EX)	5.54	0.93	5.55	1.02
Coping Strategy*	**4.07**	1.59	**4.51**	1.38
Consumer Loyalty	4.56	1.66	4.63	1.55

*Significantly different constructs

From Table 7.18, the mean scores for the four constructs under investigation are presented. It can be seen that all mean scores from Taiwan sample were higher than the UK sample. An independent *t*-test was conducted, and the results showed that the mean scores of UAI, EM, DE, and CS differed significantly between the UK and

Taiwan. The Taiwan sample had significantly higher UAI scores than the UK, meaning that the Taiwan sample had higher uncertainty avoidance than the UK sample. The results echoed Hofstede's (1980, 1991, 2010) studies, indicating that Taiwan has been possessing higher uncertainty avoidance than the UK since Hofstede's first investigation. However, the difference of the IDV mean scores in two countries was not significant, meaning both countries' IDV have a similar orientation.

Both the UK's and Taiwan's IDV scores were above-average (average = 3.0), showing both countries were more collectivistic orientated. As the scale for Hofstede's cultural dimensions was the CVSCALE (Donthu and Yoo, 1998; Yoo *et al.*, 2001; Yoo *et al.*, 2011), UK was one of the countries measured by CVSCALE in Soares' (2005) research. The mean scores of UAI and IDV for the UK ($Mean_{UK\text{-}UAI}$ = 3.62, $Mean_{UK\text{-}IDV}$ = 3.12) in the present research were similar to Soares': $Mean_{UK\text{-}UAI}$ = 3.73 (n=151), $Mean_{UK\text{-}IDV}$ = 3.13 (n=148). It shows that in both Soares and the present research, UK was suggested to have high UAI and closer to a collectivistic orientation. As Taiwan was measured by CVSCALE for the first time, the results were not comparable.

In the perceptions of mobile technology attributes, both UK and Taiwan showed the same pattern, which was as follows: perceived empowerment had the highest scores among the four attributes ($Mean_{UK}$ = 5.97, $Mean_{Taiwan}$ = 6.15), followed by perceived expectation ($Mean_{UK}$ = 5.54, $Mean_{Taiwan}$ = 5.55), then perceived competence ($Mean_{UK}$ = 4.23, $Mean_{Taiwan}$ = 4.40). The lowest score was perceived dependence ($Mean_{UK}$ = 3.27, $Mean_{Taiwan}$ = 3.72). As perceived empowerment, expectation (illusion) and competence were all positive attributes, it shows that consumers in both countries perceived positive attributes higher than average (scale scores from 1 to 7, average=4.0), meaning they had strong perception in positive experience of mobile technology. Also, the perceived negative attribute for both (perceived dependence)

was lower than average, meaning they had weak perception in negative experience in mobile technology. In other words, consumers in both countries perceived 'independence' rather than 'dependence'.

Both UK and Taiwan again showed a similar pattern in their coping strategies and consumer loyalty. Both of their mean scores for these two constructs were above average (scale scores from 1 to 7, average=4.0), meaning consumers in both countries tended to employ a confrontation orientation, and also had high consumer loyalty.

After understanding both UK and Taiwan's cultural orientation, perceptions of mobile technology attributes, coping strategy tendency and the consumer loyalty, the relationships between these constructs in each country can be explained and are presented in the SEM results in the following sections.

7.4.5.1.2 SEM Results from the UK Sample

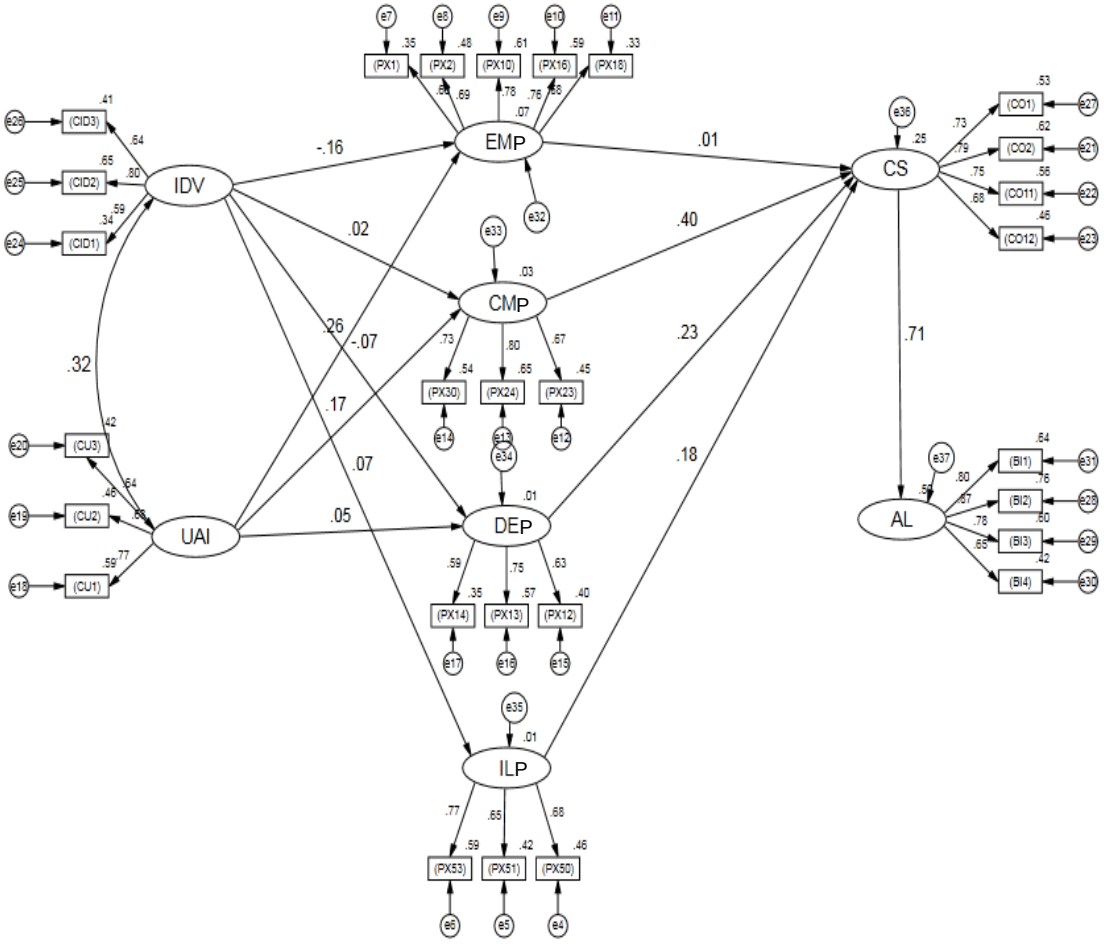
The overall structural model fit for the full mediation and partial mediation models for the UK sample model appeared to be acceptable (See Table 7.19 below), and it can be seen that the partial mediation model had a better fit than the full mediation model.

Table 7.19 Fit Indices for Full and Partial Mediation Models (UK Sample)

	Chi-Square	*df*	RMSEA	GFI	CFI
Full Mediation	571.645	337	0.058	0.835	0.886
Partial Mediation	526.464	333	0.053	0.851	0.906

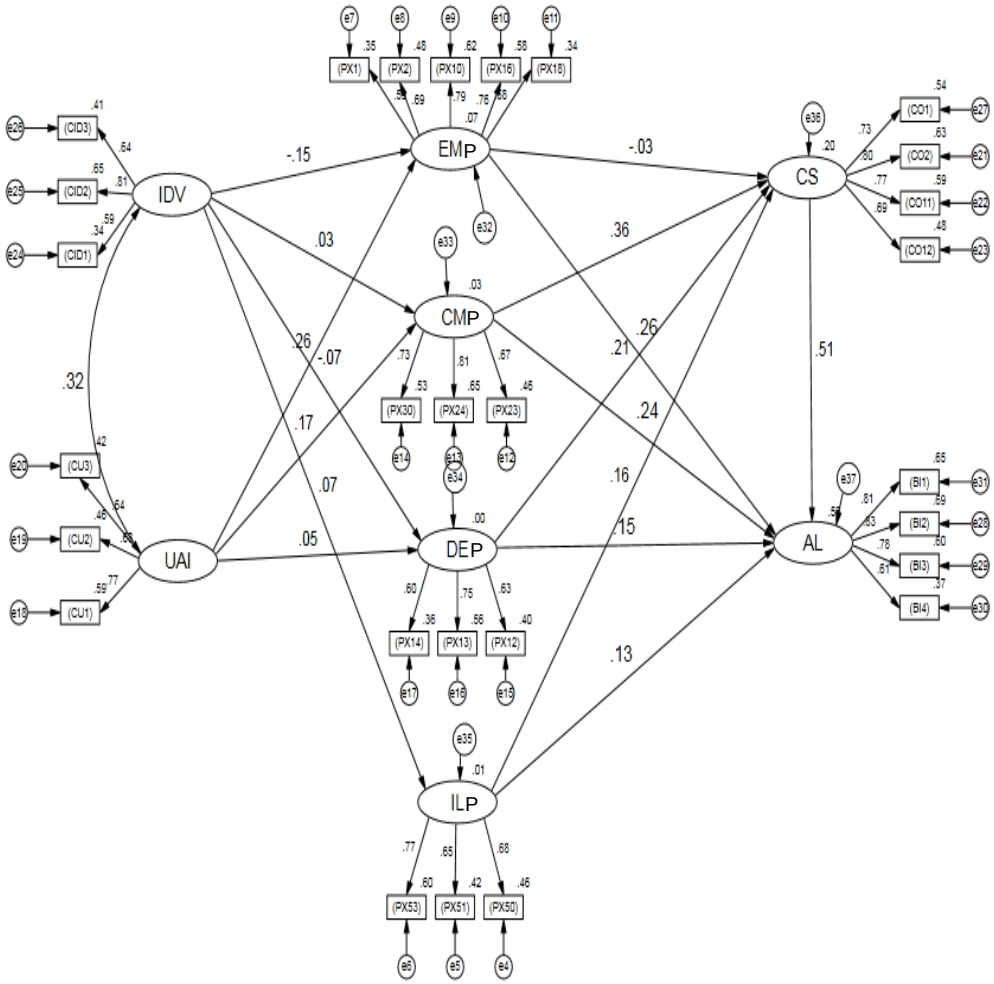
Figure 7.15 (full mediation) and Figure 7.16 (partial mediation) show the results of the structural model analyses. Table 7.20 (p. 239) below provides a summary of the hypothesis testing.

Figure 7.15 SEM Results (UK Sample – Full Mediation)



Full Mediation Model (UK Sample)
N=209

Figure 7.16 SEM Results (UK Sample – Partial Mediation)



Partial Mediation Model (UK Sample)
N=209

Table 7.20 Results of the Hypothesis Testing (UK Sample, n=209)

Hypothesis	Hypothesised Relationship	Full Mediation		Partial Mediation	
		Standardised path coefficient	*t*-value	Standardised path coefficient	*t*-value
H1a	IDV→EMP (EM/EN Paradox)	- 0.158	- 1.64	- 0.153	- 1.59
H1b	IDV→CMP (CM/ICM Paradox)	0.020	0.22	0.025	0.26
H1c	IDV→DEP (DE/IDE paradox)	- 0.074	- 0.72	- 0.069	- 0.70
H1d	IDV→ILP (IL/DIL paradox)	0.071	0.77	0.074	0.81
H1e	UAI→EMP	0.263	2.63**	0.260	2.60**
H1f	UAI→CMP	0.173	1.76	0.170	1.74
H1g	UAI→DEP	0.054	0.53	0.049	0.48
H2a	EMP→Coping Strategy (CS)	0.015	0.30	- 0.033	- 0.43
H2b	CMP→CS	0.399	4.50***	0.365	4.13***
H2c	DEP→CS	0.234	2.70**	0.215	2.45*
H2d	ILP→CS	0.176	2.15*	0.157	1.89
H4f	CS→ AL	0.708	8.02***	0.509	5.98***
H3a	EMP→AL			0.263	3.80***
H3b	CMP→AL			0.238	3.16**
H3c	DEP→AL			0.146	2.01*
H3d	ILP→AL			0.126	1.84
Model Fit Statistics					
χ^2		571.645		526.646	
df		337		333	
RMSEA		0.058		0.053	
GFI		0.835		0.851	
CFI		0.886		0.906	
Variance explained (R^2)					
Empowerment/Enslavement(Paradox)		0.07		0.07	
Competence/Incompetence (Paradox)		0.03		0.03	
Dependence/Independence(Paradox)		0.01		0.01	
Illusion/Disillusion (Paradox)		0.01		0.01	
Coping Strategy		0.25		0.21	
Consumer Loyalty		0.50		0.56	

*p<0.05; **p<0.01; ***p<0.001;

Based on the above table, the discussion of each hypothesis is addressed in the following sections.

Cultural Dimensions vs. Paradoxes of Mobile Technology

From Table 7.20, it shows that only H1e (t=2.63, p<0.05) was supported, with a positive coefficient. It shows that UAI was associated with the EMP. That means the higher/lower the uncertainty avoidance of British consumers, the stronger/weaker their perceived empowerment.

Paradoxes of Mobile Technology vs. Coping Strategies

Three hypotheses in this category were supported. They were H2b (t=4.50, p<0.001), H2c (t=2.70, p<0.01) and H2d (t=2.15, p<0.05), showing that the CMP, DEP and ILP were related to coping strategies with positive coefficients. That means that the higher the perceptions of competence, dependence and expectation consumers possessed, the more likely they were to employ the confrontation strategy to deal with it. On the other hand, the lower the perceptions of competence (higher in incompetence), dependence (higher in independence) and expectation (higher in disillusion), the more likely consumers were to employ the avoidance strategy.

Coping Strategies vs. Consumer Loyalty

The hypothesis for the two constructs was supported. H4 (t=8.02, p<0.001) was supported with a positive coefficient. That means that British consumers who were more likely to employ the confrontation strategy were more likely to stay on with this technology. On the other hand, those who were more likely to employ the avoidance strategy were less likely to stay on with this technology. The result was the same with the whole sample.

The Mediating Effect of Coping Strategies on the Relationship between Perceived Paradoxes and Consumer Loyalty

The relationships between the perceived paradoxes and consumer loyalty were hypothesised to be mediated by coping strategies. Coping strategies as a mediator

was shown in the partial mediation model, which is drawn in Figure 7.16. The partial mediation model also showed a better overall fit (χ^2 = 526.646, *df*=333, RMSEA=0.053, GFI=0.851, CFI=0.906). Because the full mediation model is nested in the partial mediation model, an χ^2 difference test should be performed to determine if the partial mediation model is indeed better than the full mediation model. The test results shows that the partial mediation model provided a better fit than the full mediation model ($\Delta\chi^2$ = 44.999, Δdf = 4, $p < 0.05$). Accordingly, the direct effect of the perceived paradoxes on consumers' consumer loyalty was examined.

Three paradoxes - EMP (H3a: *t*=3.80, p<0.001), CMP (H3b: *t*=3.16, p<0.01) and DEP (H3c: *t*=2.01, p<0.05) - were shown to have a direct impact on consumer loyalty. However, the relationships between EMP, ILP and coping strategies were not supported (H2a: t=0.43, p>0.05; H2d: t=1.89, p>0.05). Based on the results of H2a-H2d, H4 and H3a-H3b, it can be seen that coping strategies partially mediated the relationships between the CMP, DEP and consumer loyalty. Also, they did not have any mediating effect on the relationships between EMP, ILP paradox and consumer loyalty. The results of the coping strategies' mediating effect are consistent with the whole sample results.

7.4.5.1.3 SEM Results from the Taiwan Sample

The overall structural model fit for the full mediation and partial mediation models for the Taiwan sample model appeared to be acceptable (See Table 7.21 below,) and it can be seen that the partial mediation model had a better fit than the full mediation model.

Table 7.21 Fit Indices for Full and Partial Mediation Models (Taiwan Sample)

	Chi-Square	*df*	RMSEA	GFI	CFI
Full Mediation	721.831	337	0.062	0.849	0.875
Partial Mediation	677.334	333	0.059	0.858	0.889

Figure 7.17 (full mediation) and Figure 7.18 (partial mediation) show the results of the structural model analyses. Table 7.22 below provides a summary of the hypothesis testing.

Figure 7.17 SEM Results (Taiwan Sample – Full Mediation)

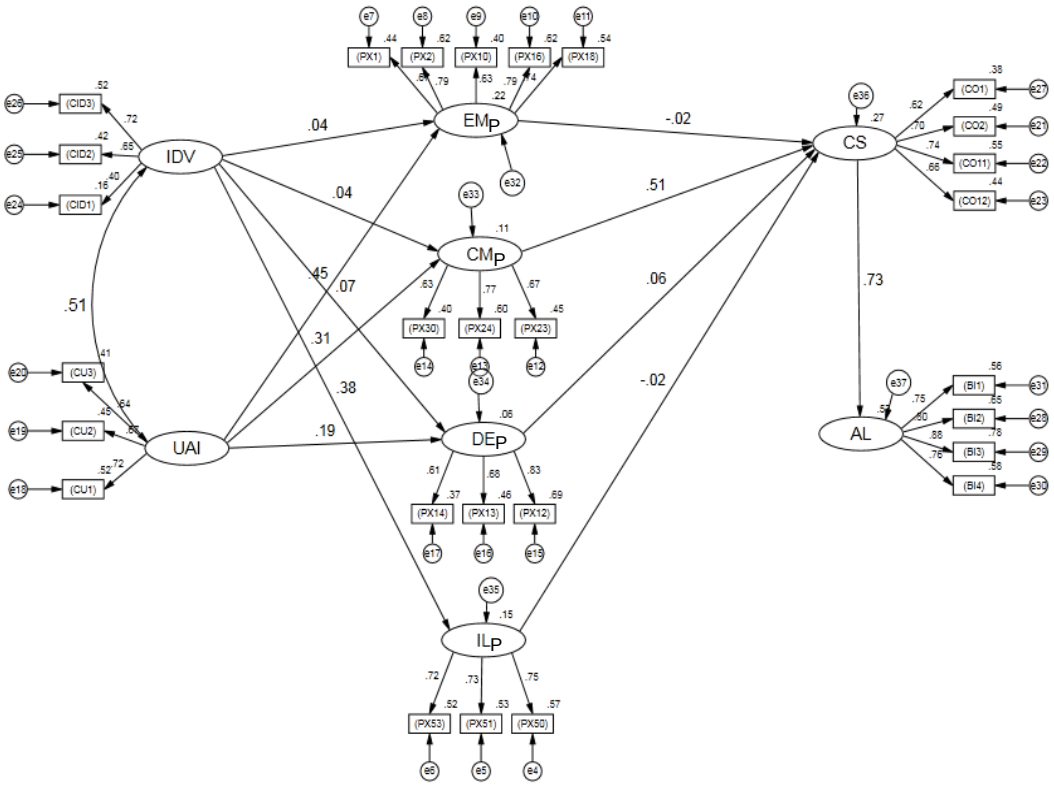
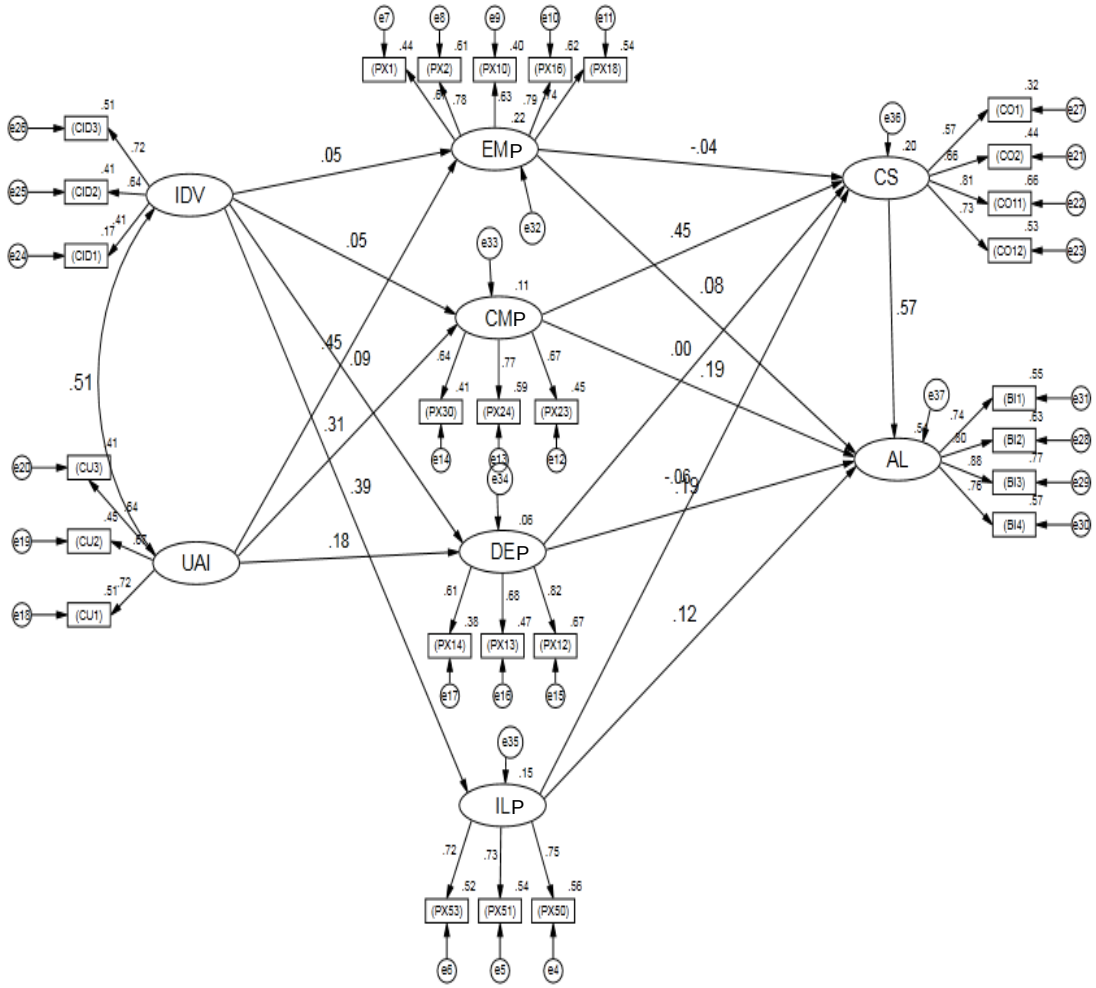


Figure 7.18 SEM Results (Taiwan Sample - Partial Mediation)



Partial Mediation Model (TW Sample)
N=301

Table 7.22 Results of the Hypothesis Testing (Taiwan Sample, n=301)

Hypothesis	Hypothesised Relationship	Full Mediation		Partial Mediation	
		Standardised path coefficient	*t*-value	Standardised path coefficient	*t*-value
H1a	IDV→EMP (EM/EN Paradox)	0.041	0.45	0.050	0.55
H1b	IDV→CMP (CM/ICM Paradox)	0.040	0.40	0.054	0.54
H1c	IDV→DEP (DE/IDE paradox)	0.074	0.75	0.086	0.89
H1d	IDV→ILP (IL/DIL paradox)	0.383	4.46***	0.393	4.54***
H1e	UAI→EMP	0.452	4.57***	0.446	4.51***
H1f	UAI→CMP	0.313	3.09**	0.308	3.03**
H1g	UAI→DEP	0.189	1.95	0.184	1.89
H2a	EMP→Coping Strategy (CS)	- 0.024	- 0.37	- 0.043	- 0.64
H2b	CMP→CS	0.513	5.80***	0.451	5.11***
H2c	DEP→CS	0.061	0.90	0.003	0.05
H2d	ILP→CS	- 0.023	- 0.34	- 0.056	- 0.81
H4	CS→ AL	0.726	8.30***	0.571	6.63***
H3a	EMP→AL			0.081	1.50
H3b	CMP→AL			0.193	2.80**
H3c	DEP→AL			0.187	3.27**
H3d	ILP→AL			0.116	2.08*
Model Fit Statistics					
χ^2		721.831		677.334	
df		337		333	
RMSEA		0.062		0.059	
GFI		0.849		0.858	
CFI		0.875		0.889	
Variance explained (R^2)					
Empowerment/Enslavement(Paradox)		0.23		0.23	
Competence/Incompetence (Paradox)		0.11		0.12	
Dependence/Independence(Paradox)		0.06		0.06	
Illusion/Disillusion (Paradox)		0.15		0.16	
Coping Strategy		0.27		0.20	
Consumer Loyalty		0.53		0.54	

*p<0.05; **p<0.01; ***p<0.001;

Based on the above table, the discussion of each hypothesis is addressed in the following sections.

Cultural Dimensions vs. Paradoxes of Mobile Technology

From Table 7.22, it is shown that H1d (t=4.46, p<0.001), H1e (t=4.57, p<0.001) and H1f (t=3.09, p<0.01) were supported, with positive coefficients. H1a, H1b, H1c and H1g were not supported. H1d shows that the IDV was associated with the IL. That means the more collectivistic/individualistic Taiwanese consumers (score 1 = individualism, score 7= collectivism), the stronger/weaker their perceived expectation. H1e and H1f show that UAI was associated with the EMP and CMP. That means the higher/lower the uncertainty avoidance of Taiwanese consumers, the stronger/weaker their perceived empowerment and competence.

Paradoxes of Mobile Technology vs. Coping Strategies

Only one hypothesis in this category was supported. H2b (t=5.80, p<0.001) shows that the CMP was related to coping strategies, and with a positive coefficient. That means that the higher the perceptions of competence Taiwanese consumers possessed, the more likely they were to employ the confrontation strategy. On the contrary, the lower the perceptions of competence (higher in incompetence), dependence (higher in independence) and expectation (higher in disillusion), the more likely consumers were to employ the avoidance strategy. The result was the same as the British sample.

Coping Strategies vs. Consumer Loyalty

The hypothesis (H4) for the two constructs was supported (t=8.30, p<0.001), with positive coefficients. That means that Taiwanese consumers who were more likely to employ the confrontation strategy were more likely to continue using this technology. On the other hand, those who were more likely to employ avoidance strategy were less likely to continue using this technology. The result was consistent throughout the whole sample and British sample.

The Mediating Effect of Coping Strategies on the Relationship between Perceived Paradoxes and Consumer Loyalty

The relationships between the perceived paradoxes and consumer loyalty were hypothesised to be mediated by coping strategies. Coping strategies as a mediator was shown in the partial mediation model (Figure 7.18). The partial mediation model also showed a better overall fit (χ^2 = 677.334, *df*=333, RMSEA=0.059, GFI=0.858, CFI=0.889). Because the full mediation model is nested in the partial mediation model, an χ^2 difference test was performed to determine if the partial mediation model is indeed better than the full mediation model. The test results show that the partial mediation model provided a better fit than the full mediation model ($\Delta\chi^2$ = 44.497, Δdf = 4, $p < 0.05$). Accordingly, the direct effect of the perceived paradoxes on consumers' consumer loyalty was examined.

Three paradoxes - CMP (H3b: *t*=2.80, p<0.01), DEP (H3c: *t*=3.27, p<0.01), and ILP (H3d: *t*=2.08, p<0.05) - were shown to have a direct impact on consumer loyalty. However, the relationships between DEP, ILP and coping strategies were not supported (H2c: *t*=0.05, p>0.05; H2d: *t*=-0.81, p>0.05). Based on the results of H2a-H2d, H4 and H3a-H3b, it can be seen that coping strategies partially mediated the relationship between CMP and consumer loyalty. Also, coping strategies did not have any mediating effect on the relationships between EMP, DEP and ILP and consumer loyalty.

The results of the hypothesis testing for the three groups are summarised below:

Table 7.23 Summary of the Results of Hypothesis Testing

		Whole	UK	Taiwan
H1a:	Individualism/Collectivism dimension and Empowerment/Enslavement paradox are related.	Not Supported	Not Supported	Not Supported
H1b:	Individualism/Collectivism dimension and Competence/Incompetence paradox are related.	Not Supported	Not Supported	Not Supported
H1c:	Individualism/Collectivism dimension and Independence/Dependence paradox are related.	Not Supported	Not Supported	Not Supported
H1d:	Individualism/Collectivism dimension and Illusion/Disillusion paradox are related.	**Supported**	Not Supported	**Supported**
H1e:	Uncertainty avoidance and Empowerment/Enslavement paradox are related.	**Supported**	**Supported**	**Supported**
H1f:	Uncertainty avoidance and Competence/Incompetence paradox are related.	**Supported**	Not Supported	**Supported**
H1g:	Uncertainty avoidance and Independence/Dependence paradox are related.	**Supported**	Not Supported	Not Supported
H2a:	Empowerment/Enslavement paradox and coping strategies are related.	Not Supported	Not Supported	Not Supported
H2b:	Competence/Incompetence paradox and coping strategies are related.	**Supported**	**Supported**	**Supported**
H2c:	Independence/Dependence paradox and coping strategies are related.	**Supported**	**Supported**	Not Supported
H2d:	Illusion/Disillusion paradox and coping strategies are related.	Not Supported	Not Supported	Not Supported
H3a:	Coping strategies mediate the effect of the perception of the Empowerment/Enslavement paradox on consumer loyalty.	Not Supported	Not Supported	Not Supported
H3b:	Coping strategies mediate the effect of the perception of Competence/Incompetence paradox on consumer loyalty.	**Supported**	**Supported**	**Supported**
H3c	Coping strategies mediate the effect of the perception of the Independence/Dependence paradox on consumer loyalty.	**Supported**	**Supported**	Not Supported
H3d:	Coping strategies mediate the effect of the perception of Illusion/Disillusion paradox on consumer loyalty.	Not Supported	Not Supported	Not Supported
H4:	Coping strategies and consumer loyalty are related.	**Supported**	**Supported**	**Supported**

The hypothesis testing was also run in second-order CFA. The result was similar to the first-order CFA. The second-order hypothesis testing is included in the Appendix XI.

7.5 Assessment of Measurement Invariance

As mentioned in 4.2, *Cross-Cultural Research Methodological Considerations (p. 80)*, the measurement equivalence, also addressed as invariance, was a major issue particularly in cross-cultural research. This means that the same coherence or structure in the psychometric properties of data from different cultural groups should be demonstrated or, otherwise, the between-group differences cannot be confidently interpreted (Cheung and Rensvold, 2002). Statistical figures such as means and regression coefficients can only be compared among different groups when they are demonstrated as comparable (Chen, 2008; Horn and McArdle, 1992; Meade and Lautenschlager, 2004).

The multi-group confirmatory factor analysis (MGCFA) model (Jöreskog, 1971) is considered to be the most powerful tool for assessing the measurement invariance especially in the cross-national/cultural research (Steenkamp and Baumgartner, 1998).

7.5.1 Types of Measurement Invariance

Measurement invariance is a general term that involves different components' invariance in the measurement model (Cheung and Rensvold, 2002). The following table shows a summary of the different types of measurement invariance.

Table 7.24 Different Models of Measurement Invariance

Source: Chen (2007); Milfont and Fischer (2010); Steenkamp and Baumgartner (1998); Rock et al. (1978); van de Schoot et al. (2012); Widaman and Reise (1997)

The invariance tests are normally conducted by Jöreskog's (1971) strategy, using nested models. That is, the tests are organised in hierarchical order. By adding one constraint at a time, the subsequent model is one constraint more than the previous model. A measurement invariance is demonstrated when a) the model fit indices for each model are satisfactory according to recommended CFA guidelines, as discussed in 7.4.1 (p. 195); and b) the index differences (presented as the Greek letter: Δ) between models are insignificant or below an acceptable value. For example, an acceptable ΔCFI should be equal to or less than 0.01 (Cheung and Rensvold, 2002).

7.5.2 Assessing Measurement Invariance Across Groups

A MGCFA model, just like a normal CFA model, produces goodness-of-fit indices for each test. These goodness-of-fit indices for each model have to be satisfactory according to recommended guidelines, as mentioned in 7.4.1. Therefore, selecting indices for the determination of measurement invariance is also an arguable issue just like a normal CFA model. The common indices employed by scholars, and their

cut-off points are presented in Table 7.25. The strengths and limitations of the individual index are also presented.

Table 7.25 The Common Fit indices Employed in Cross-Cultural Research

Source: *Cheung and Rensvold (2002); Milfont and Fischer (2010); Steenkamp and Baumgartner (1998); van de Schoot et al. (2012)*

Chi-square (χ^2) is the most common index for assessing a model fit, accompanied by the *t*-test. However, the well-known problem related to sample size was addressed in 7.4.1. Accordingly, other indices should be considered as supplements. From Table 7.25 above, the common fit indices (CFI and RMSEA) used for most research were considered in the present research. All of them are insensitive to sample size (Hu and Bentler, 1999; Milfont and Fischer, 2010), and their ability (sensitivity) to detect model misspecification is evidenced (Chen, 2007).

As regards the procedure for conducting the MGCFA, Milfont and Fischer (2010) provide a clear guideline. The first step is to make sure the model provides a good fit in each group. The second step (Model 1: configural invariance) is to cross-validate the unconstrained model in two or more groups. The third step (Model 2: metric invariance) is to constrain the factor loadings to be equal between groups. The fourth step (Model 3: scalar invariance) is to constrain the intercepts to be equal between groups. The final step (Model 4: residual invariance) is to constrain all the error variances to be equal between groups.

The above-mentioned five-step procedure for ensuring the measurement invariance was performed between different types of groups. For the whole sample, there were five types of groups needed to run the MGCFA to make sure different groups were valid for comparison. They were national groups (UK/Taiwan); gender groups (male/female); age groups (merged to four: 16~25, 26~35, 36~45, 46+); education groups (merged to three: college diploma and below, bachelor's degree, master's degree and above); and the usage experience (length of time using mobile phone group: merged to three groups: less than six years, between six and ten years, more than ten years). Apart from the nation and gender groups, the other three groups were re-grouped to a smaller number of groups. This was due to the requirement of a minimum amount of respondents (30 people) in each group for testing the MGCFA by the AMOS software.

7.5.2.1 Measurement Invariance between Nation Groups

In this group measurement invariance test, two groups were tested – the UK and Taiwan. The results of the invariance tests are provided in Table 7.26 below.

Table 7.26 Model Fit Indices for Invariance Tests between Nations

	χ^2	$\Delta\chi^2$	*df*	CFI	ΔCFI	RMSEA	ΔRMSEA	Model Support
Model 1	964.782		644	0.938		0.031		YES
Model 2	1002.289	38.00***	664	0.934	0.004	0.032	0.001	YES
Model 3	1326.104	323.815***	692	0.877	**0.057**	0.042	0.010	**NO**
Model 4	1437.618	111.514***	756	0.861	**0.016**	0.044	0.002	**NO**

***p<0.000

From the table above, it can be seen that model 1: Configural invariance was demonstrated. The goodness-of-fit indices for the multi-group assessment for UK and Taiwan showed an acceptable fit: the χ^2 value was 964.782 (*df*=644), and expectedly statistically significant (p<0.05); CFI was 0.938, and RMSEA was 0.031.

For model 2: Metric/Factor loading invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed acceptable fit: the χ^2 value was 1002.289 (*df*=664) and, expectedly, statistically significant (p<0.05); CFI was 0.934, and RMSEA was 0.032. ΔCFI = 0.004, and ΔRMSEA=0.001 were both satisfactory based on Table 7.25 (p. 250).

Model 3: Scalar/Intercept invariance and Model 4: Residual/Error variance invariance were not demonstrated, as the CFI difference was larger than the requirement (ΔCFI = 0.057>0.01 and 0.016 > 0.01). This indicated that latent means, correlations and individual item differences could not be compared between these two countries.

The results of the measurement invariance between nations showed that the latent variables and their indicators were identical and the scale was perceived in the same way between the UK and Taiwan. However, the latent means and correlations between these two countries could not be compared.

7.5.2.2 Measurement Invariance between Gender Groups

In this group measurement invariance test, two groups were tested – male and female groups. The results of the invariance tests are provided in Table 7.27 below.

Table 7.27 Model Fit Indices for Invariance Tests between Gender Groups

	χ^2	$\Delta\chi^2$	*df*	CFI	ΔCFI	RMSEA	ΔRMSEA	Model Support
Model 1	998.746		644	0.929		0.034		YES
Model 2	1015.522	16.78***	664	0.929	0.000	0.033	0.001	YES
Model 3	1084.332	68.81***	692	0.921	0.008	0.035	0.002	YES
Model 4	1160.013	75.68***	756	0.919	0.002	0.034	0.001	YES

***p<0.000

From the table above, it can be seen that model 1: Configural invariance was demonstrated. The goodness-of-fit indices for the multi-group assessment for UK and Taiwan showed an acceptable fit: the χ^2 value was 998.746 (*df*=644), and expectedly statistically significant (p<0.05); CFI was 0.929, and RMSEA was 0.034.

For model 2: Metric/Factor loading invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1015.522 (*df*=664) and, expectedly, statistically significant (p<0.05); CFI was 0.929, and RMSEA was 0.033. ΔCFI = 0.000, and ΔRMSEA=0.001 were both satisfactory based on Table 7.25 (p. 250).

Model 3: Scalar/Intercept invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1084.332 (*df*=692) and, expectedly, statistically significant (p<0.05); CFI was 0.921, and RMSEA was 0.035. ΔCFI = 0.008, and ΔRMSEA=0.002, both were satisfactory based on Table 7.25.

Model 4: Residual/Error variance invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1160.013 (*df*=756) and, expectedly, statistically significant (p<0.05); CFI was 0.919, and RMSEA was 0.034. ΔCFI = 0.002, and ΔRMSEA=0.001, were both satisfactory based on Table 7.25.

The results of the measurement invariance between genders showed that all the data between two genders could be compared.

7.5.2.3 Measurement Invariance between Age Groups

In this group measurement invariance test, four groups were tested – aged between 16 and 25, 26 and 35, 36 and 45, and 46+. The results of the invariance tests are provided in Table 7.28 below.

Table 7.28 Model Fit Indices for Invariance Tests between Age Groups

	χ^2	$\Delta\chi^2$	*df*	CFI	ΔCFI	RMSEA	ΔRMSEA	Model Support
Model 1	1750.215		1288	0.910		0.027		YES
Model 2	1822.227	72.012***	1348	0.908	0.002	0.026	0.001	YES
Model 3	2049.406	227.179***	1462	0.880	**0.028**	0.029	0.003	**NO**
Model 4	2431.184	381.778***	1624	0.842	**0.038**	0.031	0.002	**NO**

***p<0.000

From the table above, it can be seen that model 1: Configural invariance was demonstrated. The goodness-of-fit indices for the multi-group assessment for UK and Taiwan showed an acceptable fit: the χ^2 value was 1750.215 (*df*=1288) and, expectedly, statistically significant (p<0.05); CFI was 0.910, and RMSEA was 0.027.

For model 2: Metric/Factor loading invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1822.227 (*df*=1348) and, expectedly, statistically significant (p<0.05); CFI was 0.908, and RMSEA was 0.026. ΔCFI = 0.002, and ΔRMSEA=0.001 were both satisfactory based on Table 7.25 (p. 250).

Model 3: Scalar/Intercept invariance and Model 4: Residual/Error variance invariance were not demonstrated, as CFI difference was larger than the requirement (ΔCFI = 0.028 >0.01 and 0.038 > 0.01). This indicated that latent means, correlations and individual item differences could not be compared between these age groups.

The results of the measurement invariance between age groups showed that the latent variables and their indicators were identical and the scale was perceived in the same way between different age groups. However, the latent means and correlations between these groups could not be compared.

7.5.2.4 Measurement Invariance between Education Levels

In this group measurement invariance test, three groups were tested in terms of the qualification obtained – college diploma and below, bachelor's degree, and master's degree and above. The results of the invariance tests are provided in Table 7.29 below.

Table 7.29 Model Fit Indices for Invariance Tests between Education Groups

	χ^2	$\Delta\chi^2$	*df*	CFI	ΔCFI	RMSEA	ΔRMSEA	Model Support
Model 1	1462.432		966	0.905		0.032		YES
Model 2	1535.426	72.99***	1006	0.897	0.008	0.032	0.000	YES
Model 3	1651.690	116.264***	1062	0.887	0.010	0.033	0.001	YES
Model 4	1846.491	194.801***	1190	0.874	**0.013**	0.033	0.000	**NO**

***p<0.000

From the table above, it can be seen that model 1: Configural invariance was demonstrated. The goodness-of-fit indices for the multi-group assessment for the UK and Taiwan showed an acceptable fit: the χ^2 value was 1462.432 (*df*=966) and, expectedly, statistically significant (p<0.05); CFI was 0.905, and RMSEA was 0.032.

For model 2: Metric/Factor loading invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1535.426 (*df*=1006) and, expectedly, statistically significant (p<0.05); the CFI was 0.897, and RMSEA was 0.032. ΔCFI = 0.008, and ΔRMSEA=0.000 were both satisfactory based on Table 7.25 (p. 250).

Model 3: Scalar/Intercept invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1651.690 (*df*=1062) and, expectedly, statistically significant (p<0.05); the CFI was 0.887, and RMSEA was 0.033. ΔCFI = 0.010, and ΔRMSEA=0.001 were both satisfactory based on Table 7.25 (p. 250).

Model 4: Residual/Error variance invariance was not demonstrated, the goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1160.013 (*df*=756) and, expectedly, statistically significant (p<0.05); CFI was 0.874, and RMSEA was 0.033. However, ΔCFI = 0.013 which is larger than 0.01. Therefore, the residual/error variance invariance was not supported.

The results of the measurement invariance between education levels showed that the latent variables and their indicators were identical and the scale was perceived in the same way between different age groups. The latent means and correlations between these groups could be compared, but the scores for the individual item (indicator) for the latent variables could not.

7.5.2.5 Measurement Invariance between Usage Experience

In this group measurement invariance test, three groups were tested in terms of years of experience in using mobile phones: less than six years, between six and ten years, and more than ten years. The results of the invariance tests are provided in Table 7.30 below.

Table 7.30 Model Fit Indices for Invariance Tests between Usage Experience Groups

	χ^2	$\Delta\chi^2$	*df*	CFI	ΔCFI	RMSEA	ΔRMSEA	Model Support
Model 1	1756.545		966	0.859		0.040		YES
Model 2	1833.869	77.324***	1006	0.852	0.007	0.040	0.000	YES
Model 3	1897.914	64.045***	1062	0.851	0.001	0.039	0.001	YES
Model 4	2093.511	195.597***	1190	0.839	**0.012**	0.039	0.000	**NO**

***p<0.000

From the table above, it can be seen that model 1: Configural invariance was demonstrated. The goodness-of-fit indices for the multi-group assessment for UK and Taiwan showed an acceptable fit: the χ^2 value was 1756.545 (*df*=966) and, expectedly, statistically significant (p<0.05); CFI was 0.859, and RMSEA was 0.040.

For model 2: Metric/Factor loading invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1833.869 (*df*=1006) and, expectedly, statistically significant (p<0.05); CFI was 0.852, and RMSEA was 0.040. ΔCFI = 0.007, and ΔRMSEA=0.000 were both satisfactory based on Table 7.25 (p. 250).

Model 3: Scalar/Intercept invariance was also demonstrated. The goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 1897.914 (*df*=1062) and, expectedly, statistically significant (p<0.05); CFI was 0.851, and RMSEA was 0.039. ΔCFI = 0.001, and ΔRMSEA=0.001 were both satisfactory based on Table 7.25.

Model 4: Residual/Error variance invariance was not demonstrated, the goodness-of-fit indices for the multi-group assessment showed an acceptable fit: the χ^2 value was 2093.511 (*df*=1190) and, expectedly, statistically significant (p<0.05);

the CFI was 0.839, and RMSEA was 0.039. However, ΔCFI = 0.012, which is larger than 0.01. Therefore, the residual/error variance invariance was not supported.

The results of the measurement invariance between usage experience showed that the latent variables and their indicators were identical and the scale was perceived in the same way between different user groups. The latent means and correlations between these groups could be compared, but the score for the individual item (indicator) for the latent variables could not.

7.6 Summary

This chapter presents the results of the data analysis based on the data collected by the questionnaire, and the research findings based on the revised hypotheses. The chapter begins by presenting the demographic data within the procedure of data screening. The research model is revised based on the results of measurement model specification. A total of 16 hypotheses are concluded and tested from the revised research model. The revised model and hypotheses are assessed by the structural model, and the research findings are presented. Measurement invariance is assessed and demonstrated by conducting multi-group confirmatory factor analysis (MGCFA).

Chapter 8.

Discussion and Conclusion

8.1 Introduction

This chapter presents the discussion of the findings and the conclusion of the research. It consists of five parts. The first part starts with revisiting the constructs under investigation, and the second part compares the findings from the UK and Taiwan. The third part discusses contributions made by the study, and the managerial implications. The fourth part revisits the research objectives and outlines the findings. The final part addresses the limitations of the present research and provides recommendations for future research.

8.2 Revisiting the Meanings of the Constructs

Before discussing the findings of the study, it is essential to recap the meanings of the constructs validated by this study: cultural dimensions, technology paradoxes, coping strategies and consumer loyalty.

Cultural values, consisting of six dimensions proposed by Hofstede (1980, 1991, 2001) and Hofstede et al. (2010), refer to the collective characteristics within a culture or society. The validated cultural dimensions in the present research are individualism/collectivism (IDV) and high vs. low uncertainty avoidance (UAI). As suggested in the extant literature, people in individualistic societies tend to have loose ties with others. They focus on themselves and their immediate families. People in collectivistic societies tend to have close ties with others. They focus on people around them. They have strong in-group relationships (Hofstede, 1991;

Hofstede, 2001; Hoftstede, 1980). Uncertainty avoidance (UAI) refers to the tolerance of uncertainty and ambiguity in the society. Societies which have high UAI tend to have low tolerance and are not comfortable with unstructured situations. Therefore, clear information and demonstration of the benefits of a product will be preferred in this culture. On the other hand, societies which have low UAI tend to be more comfortable with uncertainty and ambiguity; too much clarification/information may be considered redundant (Choi *et al.*, 2005).

Paradoxes of mobile technology refer to the contradictory experiences when using mobile technology. Four paradoxes were validated in the present research, which are empowerment/enslavement, competence/incompetence, dependence/independence and illusion/disillusion.

The perceived empowerment/enslavement paradox (EMP), refers to the power given by mobile technology, enabling consumers to gain freedom and be able to control their lives, whilst also losing freedom by being forced to interact with others via technology. The perceived competence/incompetence paradox (CMP), refers to the competence consumers feel because of the efficiency and effectiveness mobile technology enables, whilst also feeling uneasiness when learning how to use the functions which enable efficiency and effectiveness. The perceived independence/dependence paradox (DEP), refers to the independence from time and space consumers feel when using mobile technology, whilst also feeling dependent when they rely on an ‘always-on’ connectivity. Finally, the perceived illusion/disillusion paradox (ILP), refers to the expectation consumers have that technology will allow them to do anything anytime and anywhere, whilst also realising that mobile technology cannot do everything, at anytime, anywhere.

The third construct in the research model is coping strategies, which indicate the ability of consumers to deal with the perceived paradoxes, i.e. contradictory feelings and emotions. Consumers who have low scores in the scale indicate that they tend to choose an avoidance strategy to deal with mobile technology problems. It denotes that they would try to avoid facing the same situation again by reducing the use of products/functions of the technology. On the other hand, consumers who score high in the scale indicate that they tend to choose a confrontation strategy. This denotes that they would try positively to face any problems incurred by mobile technology, and solve them.

The last construct in the research model is consumer loyalty. Attitudinal loyalty is conceptualised as consumer loyalty, as it refers to the on-going relationship consumers have with mobile technology, denoting whether consumers intend to continue using mobile phone technology in future. Although the composite loyalty (Day, 1969), consisting of both attitudinal loyalty and behavioural loyalty, is widely used to represent the whole loyalty concept, the behavioural loyalty is thought to link with spurious loyalty, and a behavioural measure does not fit in the context of the present research, as no specific purchase behaviour is studied. As a result, behavioural loyalty is not considered in the present research.

In this research context, a broader concept of high consumer loyalty can refer to an increasing interest in learning new functions and exploring new applications, which leads to increasing the demand on mobile technology. On the contrary, low consumer loyalty can refer to a decreasing interest in learning new functions and applications. People who show low consumer loyalty may prefer to stay with the basic functions of mobile phones – only simple devices and services are required. They may not be interested in upgrading their devices, services or purchasing new peripheries of mobile technology.

Following the recapping of the constructs under investigation, the findings relating to the relationships between these constructs will be discussed next.

8.3 Discussion of the Research Findings

As stated, four of the eight paradoxes of mobile technology were validated: empowerment/enslavement, competence/incompetence, dependence/independence, and illusion/disillusion. Except for the perceived dependence/independence paradox construct, the mean scores for the rest of the constructs were all above the average mean score (4.0). The mean scores of the perceived dependence/independence paradoxes for both countries were below 4.0 ($Mean_{UK}$ = 3.27, $Mean_{Taiwan}$ = 3.72). This means that both countries perceived independence instead of dependence. From the results, it is shown that in both countries only the positive attributes of mobile phones were perceived. The details of the results from the two countries are discussed next.

8.3.1 Comparison of Study Findings between the UK and Taiwan

The results of the UK and Taiwan samples showed different relationship patterns between cultural dimensions, perceived paradoxes, coping strategies and consumer loyalty. Figure 8.1 and 8.2 below show the revised research model for the UK and Taiwan.

Figure 8.1 The Results of the Revised Research Model: The UK Sample

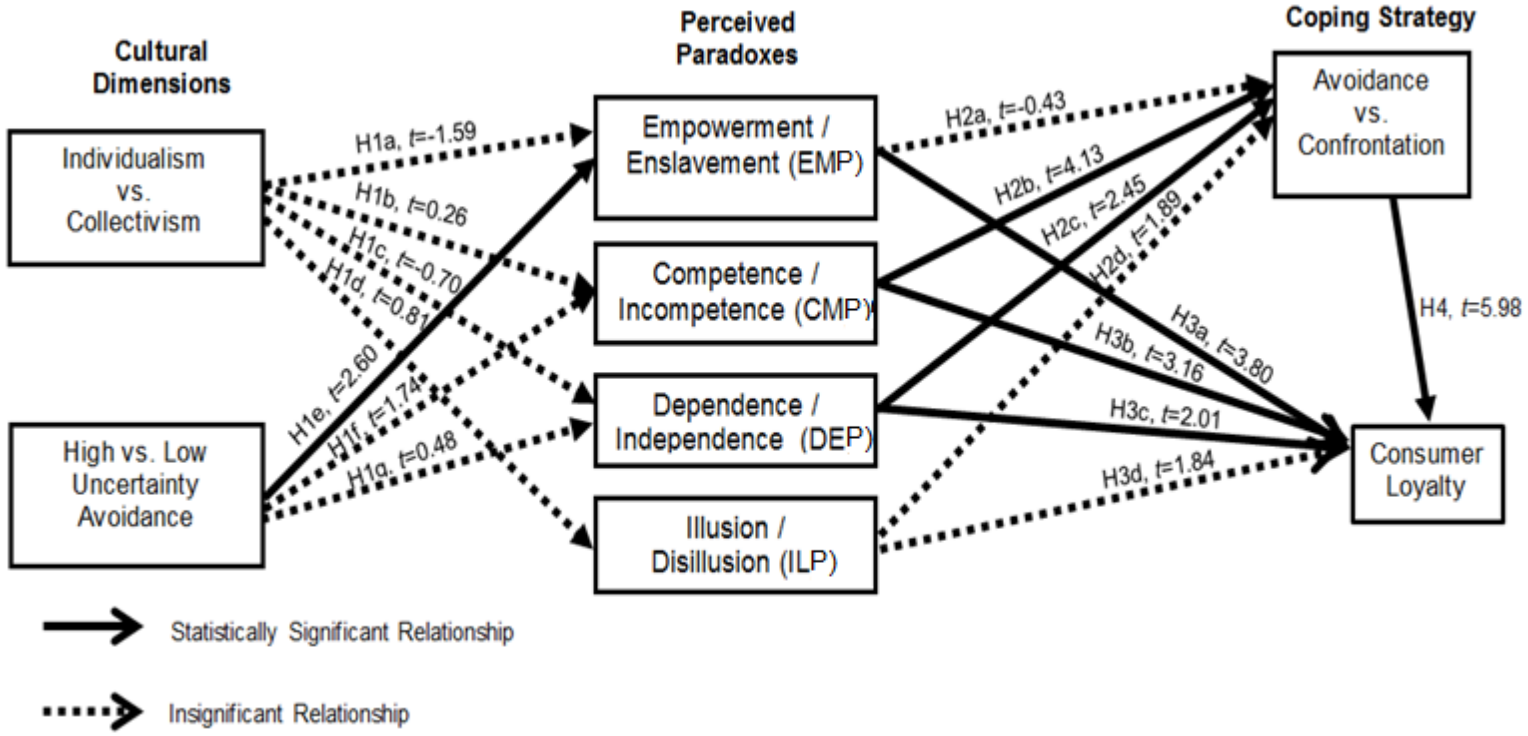
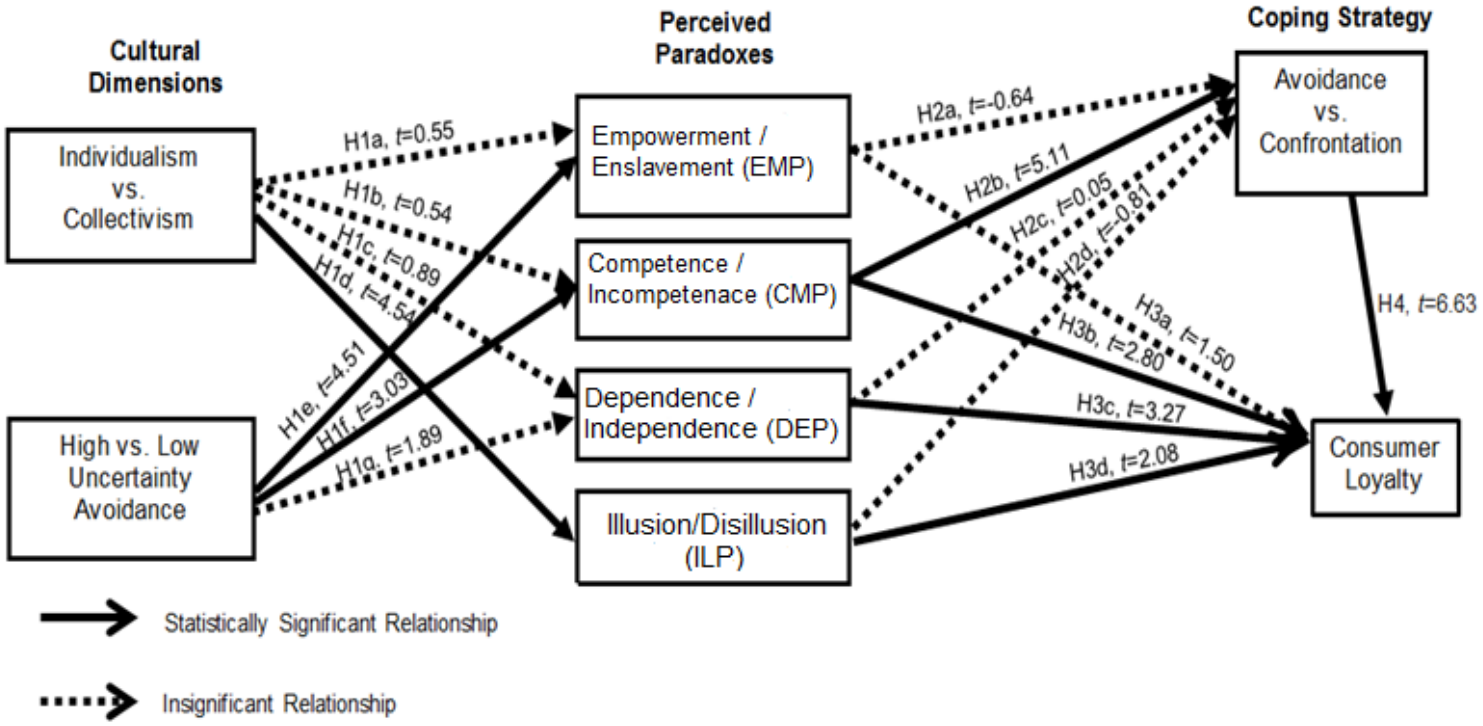


Figure 8.2 The Results of the Revised Research Model: The Taiwan Sample



According to Figures 8.1 and 8.2, discussions regarding the results of hypothesis testing in UK and Taiwan can be divided into two parts. The first refers to the influence of culture on the perceived paradoxes; and the second refers to the relationships between perceived paradoxes, coping strategies and consumer loyalty. They will be discussed next.

8.3.1.1 Culture's Influence on the Perceived Paradoxes

In the UK sample, only one hypothesised relationship between cultural dimensions and perceived paradoxes was supported. Uncertainty avoidance had a positive impact on perceived empowerment/enslavement (EMP) (H1e: t=2.60, p<0.01), suggesting that British consumers who have high uncertainty avoidance will perceive perceived empowerment/enslavement more strongly. In the Taiwan sample, three hypothesised relationships were supported (H1d, H1e, H1f). H1d, referring to the relationship between individualism/collectivism (IDV) and perceived illusion/disillusion (ILP), was positive. It denotes that Taiwanese consumers who possess higher collectivistic characteristics will have higher expectations of mobile technology. Uncertainty avoidance, the second cultural dimension, had a positive impact on perceived empowerment/enslavement and perceived competence/incompetence. It denotes that Taiwanese consumers who possess higher uncertainty avoidance will perceive higher empowerment and competence.

Hypotheses which were not supported in the UK sample are H1a (IDV→EMP), H1b (IDV→CMP), H1c (IDV→DEP), H1d (IDV→ILP), H1f (UAI→CMP) and H1g (UAI→DEP). It suggests that all the perceived paradoxes in the UK sample were not affected by individualism/collectivism (IDV) cultural dimension. Uncertainty avoidance was not related to perceived competence/incompetence and perceived dependence/independence, meaning that British consumers' perception of competence/incompetence, and dependence/independence were not affected by

their uncertainty avoidance cultural dimension. Hypotheses which were not supported in the Taiwan sample are H1a (IDV→EMP), H1b (IDV→CMP), H1c (IDV→DEP) and H1g (UAI→DEP). It depicts that the perceived empowerment/enslavement, competence/incompetence and dependence/independence were not affected by individualism/collectivism (IDV) cultural dimension among Taiwanese consumers, and uncertainty avoidance was not related to perceived dependence/independence either.

The findings suggest that uncertainty avoidance was a factor in positively influencing consumers' perceptions of empowerment/enslavement both in the UK and Taiwan, as this relationship was the only one shared between the two countries. Individualism/collectivism's positive impact on perceived illusion/disillusion (ILP), and uncertainty avoidance's positive impact on perceived competence/incompetence were only shown in the Taiwan sample, not in the UK sample. The results denote that culture's influence plays a more important role in Taiwan than in the UK.

Table 7.18 (p. 234) in Chapter 7 shows that Taiwan had a higher individualism/collectivism (IDV) mean score than the UK ($Mean_{Taiwan}$=3.15, $Mean_{UK}$=3.11, p>0.05), both of which are above the average mean score 3.0. As a result both the UK and Taiwan were closer to a collectivistic orientation. Based on a *t*-test on the mean scores between the two countries, the mean scores did not show a significant difference, so that the UK and Taiwan had similar cultural dimensions in the individualism/collectivism cultural orientation. The Taiwan sample also showed a higher uncertainty avoidance mean score than the UK's ($Mean_{Taiwan}$=4.02, $Mean_{UK}$=3.62, p<0.05), which are also both above the average mean score 3.0. It also means that the UK and Taiwan were both closer to a high uncertainty avoidance cultural orientation. A *t*-test on the uncertainty avoidance mean score between the two countries showed that there was a significant difference. Accordingly, Taiwan

was considered to have higher uncertainty avoidance than the UK. As the main characteristic of a high uncertainty avoidance orientation culture is the low tolerance of uncertainty, ambiguity and unstructured situations (Hofstede, 1991; Hofstede, 2001; Hoftstede, 1980), it is not unexpected that Taiwan sample perceived empowerment significantly stronger than the UK counterpart (perceived empowerment: $Mean_{UK}=5.97$, $Mean_{Taiwan}=6.15$, $p<0.05$).

With regard to the perceived paradoxes, the UK and Taiwan samples had a similar pattern. The perceptions of the mobile technology attributes of Taiwanese consumers, based on the mean scores, were generally higher than their British counterparts'. In both countries, the most perceived mobile technology attribute was the perceived empowerment, followed by the perceived illusion, then the perceived competence, and finally the perceived dependence. The *t*-test results showed that the mean scores of the perceived empowerment and perceived dependence had significant differences, meaning that Taiwanese consumers perceived empowerment and dependence to a statistically higher extent than the British consumers.

From the results of the mean scores of culture values/dimensions and the perceived paradoxes, the significant differences found in the UK and Taiwan in uncertainty avoidance and perceived empowerment/enslavement confirm that a higher uncertainty avoidance culture perceived stronger empowerment than a lower uncertainty avoidance culture – Taiwan had statistically higher uncertainty avoidance than the UK, and it also had statistically higher perceived empowerment. As regards the perceived dependence, Taiwan had significantly higher dependence on the mobile technology than the UK, but the results of the analysis showed that the perceived dependence was free from cultural influence. It denotes that there is something other than a cultural element that causes the difference. One possible element which contributes the difference may be the use of social media via mobile

devices. The most popular social network website in both countries since 2011 is Facebook (Chiu, 2013; Clicky, 2012; Rhodes, 2011; TaipeiTimes, 2011). Based on Reuters (Saba, 2013) and a modern marketing and media magazine, the Drum (Glenday, 2013), the UK has 24 million Facebook daily users out of 33 million total users, accounting for 72% of the total user access to Facebook daily. In Taiwan, a similar percentage (72%, 10 million daily users out of 14 million total users) is reported (TaipeiTimes, 2013). The only difference is how they access Facebook. One of the leading technology and social media websites, Mashable, reported a survey result showing that 46% of UK Facebook users access their Facebook account via mobile phones (Popescu, 2013). However, in Taiwan, this percentage is 71% (TaipeiTimes, 2013), much higher than in the UK. From the figures reported, it is plausible that Taiwanese mobile phone users feel more dependent on the technology because they rely on it to connect themselves to their friends and/or the world, much more than their UK counterparts.

8.3.1.2 The Relationships between Perceived Paradoxes, Coping Strategies and Consumer Loyalty

Table 8.1 confirms the results of the hypothesis testing.

Table 8.1 Hypothesis Tests: UK and Taiwan

		UK	Taiwan
H2a:	Empowerment/Enslavement paradox and coping strategies are related.	No	No
H2b:	Competence/incompetence paradox and coping strategies are related.	**Yes**	**Yes**
H2c:	Independence/dependence paradox and coping strategies are related.	**Yes**	No
H2d:	Illusion/disillusion paradox and coping strategies are related.	No	No
H3a:	Coping strategies mediate the effect of the perception of the Empowerment/Enslavement paradox on consumer loyalty.	No	No
H3b:	Coping strategies mediate the effect of the perception of Competence/incompetence paradox on consumer loyalty.	**Yes**	**Yes**
H3c	Coping strategies mediate the effect of the perception of the Independence/dependence paradox on consumer loyalty.	**Yes**	No
H3d:	Coping strategies mediate the effect of the perception of Illusion/disillusion paradox on consumer loyalty.	No	No
H4:	Coping strategies and consumer loyalty are related.	**Yes**	**Yes**

From Table 8.1, it is shown that, in the UK sample, two of the hypotheses (H3b and H3c) which showed the mediating effects of the coping strategies on the relationship between perceived paradoxes and consumer loyalty were supported. Perceived competence/incompetence and perceived dependence/independence were the two paradox constructs and they both had a positive impact on consumer loyalty via coping strategies. It denotes that perceived competence/incompetence and perceived dependence/independence may create some stress/anxiety, leading consumers to employ coping strategies. As the definition of perceived competence/incompetence links to the efficiency and effectiveness consumers perceive, and this particular perception is normally related to job or work performance, it makes sense that it may cause stress and anxiety. This proposition is supported by Chae and Yeum (2010) who focus on whether the perceived paradoxes of mobile technology create a sense of stress/anxiety, which would lead to enacting coping strategies. Based on a similar concept of perceived competence/incompetence creating stress/anxiety, perceived dependence/independence, which represents a

negative perception of too much reliance on mobile technology, may cause stress and anxiety when the connectivity is unstable or bad.

In the Taiwan sample, only one (H3b) hypothesised mediating effect of coping strategies on the relationship between the perceived paradoxes and consumer loyalty was supported. The positive impact of perceived competence/incompetence on consumer loyalty was mediated by coping strategies, the same as the UK sample.

Furthermore, in the UK sample, the mediating effect of coping strategies on the relationships between perceived empowerment/enslavement (EMP) (H3a) / perceived illusion/disillusion (ILP) (H3d), and consumer loyalty were not supported. However, perceived empowerment/enslavement had a significantly positive impact on consumer loyalty, denoting that EMP may not cause stress/anxiety. Perceived illusion/disillusion showed impact neither on coping strategies nor consumer loyalty, meaning that this perception does not play any role in the mobile technology market in the UK. However, in the Taiwan sample, coping strategies did not mediate the relationships between perceived empowerment/enslavement, dependence/independence, illusion/disillusion and consumer loyalty. Perceived empowerment/enslavement showed no impact on coping strategies and consumer loyalty, meaning that this particular perception does not affect the consumers' intention to continue to use mobile technology. Thereby perceived empowerment/enslavement was not important for Taiwan consumers. However, both perceived dependence/independence and illusion/disillusion had a positive impact on consumer loyalty.

From the discussion above, a similar pattern between the UK and Taiwan was found. The perceived competence/incompetence had a positive impact on consumer loyalty via coping strategies. As a result, marketers and manufacturers in both countries

need to consider the effect of perceived competence/incompetence, as it is suggested that it may create stress/anxiety as well as increase the consumers' intention to continue to use mobile technology. The differences between the two countries can be discussed based on three perceived paradoxes: perceived empowerment/enslavement, dependence/independence and illusion/disillusion. The impact of perceived empowerment/enslavement on consumer loyalty was only observed in the UK sample, meaning that this perception was not important to Taiwanese consumers. The effect of perceived dependence/independence on consumer loyalty was mediated by coping strategies only in the UK sample, whilst perceived dependence/independence had a direct effect on consumer loyalty in the Taiwan sample. It denotes that perceived dependence/independence may create stress/anxiety only in the UK sample. The effect of perceived illusion/disillusion on consumer loyalty was only observed in the Taiwan sample. It denotes that perceived illusion/disillusion was not an important perception among British consumers.

As mentioned before, the UK and Taiwan had a similar pattern in the perceptions (based on the mean scores) of perceived empowerment/enslavement, competence/incompetence, dependence/independence, and illusion/disillusion. The perceived empowerment had the highest perception, followed by the perceived illusion, and then perceived competence and, finally, perceived dependence. The mean scores of coping strategies and consumer loyalty showed a similar pattern, too – the mean scores of Taiwan in these two constructs were higher than the UK's. In both countries, the mean scores of the two constructs were above average mean scores, meaning that consumers employed confrontation strategy ($Mean_{Taiwan}$=4.51, $Mean_{UK}$=4.07, $p<0.05$), and had a high intention ($Mean_{Taiwan}$=4.63, $Mean_{UK}$=4.56, $p>0.05$) to continue to use mobile technology. However, only the mean scores of the coping strategies showed a significant difference, meaning that Taiwan consumers tend to employ the confrontation strategy significantly more than their UK

counterparts. But this difference between two countries did not result in a different intention to continue using the technology.

8.4 Contributions of the Study

Beyond Mick and Fournier (1998) and Jarvenpaa and Lang (2005), the present research makes a contribution by examining perceptions of the paradoxes of mobile technology in a cross-cultural context. There are four contributions to academia: providing a new concept (perceived paradoxes) that could predict the adoption intention for new / more advanced technology; validating Hofstede's cultural dimensions using CVSCALE in a new country (Taiwan) and with a wider range of consumers; developing two new scales for measuring paradoxes of mobile technology and coping strategies (for post-adoption); and providing new insights into culture's influence on consumer experience with technology paradoxes and consumer loyalty, and the role of coping strategies in both the UK and Taiwan. They are elaborated as follows.

8.4.1 Providing a New Dimension for Prediction of Technology Adoption

As mentioned in the introduction, research on technology adoption was still limited and largely based on the two dimensions introduced by Davis (1989) – perceived usefulness and perceived ease of use. This was despite the widespread introduction of new mobile devices and services. The present research introduces the concept of perceived paradoxes of mobile technology, based on the contradictory impact of mobile phones, as a new dimension by which to predict the future adoption of more advanced mobile technology.

8.4.2 Validating Hofstede's Cultural Dimensions with CVSCALE

The 15 item CVSCALE scale developed by Donthu and Yoo (1998) for measuring Hofstede's cultural value dimensions was adopted in the present research. Donthu

and Yoo suggest a need to validate their scale to larger and more diverse demographic samples (Yoo *et al.*, 2011). The scale has been applied to a UK sample and then compared with findings of a Portuguese sample (Soares, 2005). However, the scale has not been applied to Taiwan until the present research. In addition, the participants in Soares's study were all students. Therefore, the present research makes a contribution to the assessment of the validity of the CVSCALE with the use of a wider range of consumers (consumers other than students) in both the UK and Taiwan context.

Two culture value scales, individualism/collectivism (IDV) and uncertainty avoidance (UAI) were validated in the present research. Masculinity/femininity (MAS) was excluded in the CFA due to the low reliabilities. When two separate CFAs were run in the UK and Taiwan samples, masculinity/femininity had acceptable reliability in the UK sample but unacceptable reliability in the Taiwan sample. The factor loadings of the ad hoc CFA for the UK and Taiwan samples are provided in the Appendix XII for future reference.

The uncertainty avoidance and individualism/collectivism mean scores of Soares (2005) for the UK participants (students) were similar to the results of the present research. This confirms that the UK has a high uncertainty avoidance and is closer to a collectivistic orientation when tested by Donthu and Yoo's (1998) CVSCALE. The results are different from Hofstede's national scores, where the UK is still considered to be a low uncertainty avoidance and high individualistic country. The results from Taiwan are similar with Hofstede's national scores, where a high uncertainty avoidance and high collectivistic cultural dimensions are suggested.

8.4.3 Scales for Paradoxes of Mobile Technology and Coping Strategies

The scale for paradoxes of mobile technology was developed following Churchill's (1979) scale development paradigm. The initial scale consisted of 56 items to measure eight paradoxes of technology. Q-methodology (McKeown and Thomas, 1988) was employed to ensure the face validity of each construct without recourse to statistical analysis. Pilot-testing of the questionnaire was conducted before the empirical data collection. The empirical data showed that four paradoxes of technology were valid in the UK and Taiwan. The rest of the constructs were shown to possess unacceptable reliabilities. Given the effort and consideration invested in developing the scale, the unacceptable reliabilities of these constructs was disappointing but Chae and Yeum's (2010) interpretation of their findings could shed light on the results of the present research. Their research focusses on finding out the mediating effect of anxiety and stress on the relationship between perceived mobile technology paradoxes and coping strategies. They suggest that people may get used to the paradoxes, so that their perceptions are no longer paradoxical. This could explain why some constructs were shown as unreliable. Some items (statements) in the same constructs may not be perceived in the same way by the UK and Taiwan samples.

As the scale is the first credible scale testing paradoxes of mobile technology, the application of this scale to other countries is encouraged. It can also be further extended to test paradoxical feelings towards the usage of different products.

8.4.4 Testing Culture's Influence on Consumer Experience with Technology Paradoxes and Consumer Loyalty, and the Role of Coping Strategies

Some relevant studies relating to the relationships between cultures, post-adoption beliefs and consumer loyalty have already been conducted (e.g. Lee *et al.*, 2007).

The present research is the first to adopt Hofstede's six cultural dimensions for representing cultural characteristics at an individual level, even though the sixth dimension (indulgence vs. restraint (IVR)), was shown to be invalid. Also, the present research is the first to apply the perceptions of paradoxes of mobile technology, and to find out its relationship with consumer loyalty in a cross-cultural context.

From the findings of the two countries, a summary of the relationships between different constructs under investigation can be drawn. Firstly, the influence of culture dimensions on the perceptions of mobile technology attributes is demonstrated. Uncertainty avoidance was proved to have a positive impact on the perceived empowerment/enslavement and perceived competence/incompetence of mobile technology in both countries, supporting the theoretical assumption based on Hofstede (1980, 1991, 2001). Individualism/collectivism had a positive relationship with the perceived illusion/disillusion in the Taiwan sample. The finding contradicts Furrer et al. (2000) and Swanson et al. (2011) which suggest that people in an individualistic culture are more demanding about quality of services. As the latter can be interpreted as having an expectation of someone or something, the findings of Furrer et al. (2000) and Swanson et al. (2011) show a negative relationship between individualism/collectivism and perceived illusion/disillusion. Therefore, in this regard, the present research also provides a new finding for cultural studies.

Secondly, the influence of perceived paradoxes on coping strategies and consumer loyalty is demonstrated. Apart from the perceived empowerment/enslavement, and perceived illusion/disillusion, which only had a direct positive impact on consumer loyalty, the perceived competence/incompetence and perceived dependence/independence had an indirect impact on consumer loyalty, partially mediated by coping strategies. The perceived empowerment/enslavement, perceived illusion/disillusion to consumer loyalty relationship complements the findings from Cui

et al. (2009) who also find that the product beliefs (perceptions) have a direct effect on purchase intention. With respect to the findings of the mediating effect of coping strategies on the relationship between perceived mobile technology attributes and consumer loyalty, a new relationship among these constructs is evident. Cui et al. (2009) investigate the relationships between coping strategies, product beliefs and purchase intention and their work is the closest study to the present research. However, their coping strategies were related to pre-adoption coping (e.g. delay, pre-testing of the products) and their product beliefs were also based on pre-adoption perceptions (e.g. perceived usefulness). Their results showed that the relationship between coping strategies and purchase intention was partially mediated by the product beliefs (perceptions of products). By contrast, the present research investigated perceptions of technology paradoxes and coping strategies in a post-adoption context, and coping strategies were enacted after the perceptions. Therefore, the coping strategies were hypothesised as a mediator for perceptions (post-adoption) of mobile technology attributes and consumer loyalty. The established mediating effect of the post-adoption coping strategies provides a new paradigm for marketing theory, as no one has done it before.

8.5 Managerial Implications

The managerial implications can be divided into three parts. The general implications to the global market are discussed first, followed by the specific implications to the UK and Taiwan markets.

8.5.1 Implications for Global Market

As mobile technology involves many types of devices, and they are evolving through time, it appears that exploring/developing new functions, bigger screens, lighter, high-end technology-enabled, state-of-the-art devices are always the focus of the product developments among device manufacturers. To satisfy the consumers,

service and network providers have been focussing on making good consumer deals, and ensuring connectivity is stable by investing in the needed infrastructure. What the present research contributes to the whole mobile technology industry are the consumer insights into the constructs investigated, so the industry can react from the findings.

From the discussions above, we can see culture's influence on the perceptions of mobile technology paradoxes, and indirectly its influence on coping strategies and consumer loyalty. Particularly, uncertainty avoidance had a positive effect on the perceived empowerment/enslavement and perceived competence/incompetence in the UK and on the perceived competence/incompetence in Taiwan; and individualism/collectivism had a positive effect on the perceived illusion/disillusion in Taiwan. Therefore, the first thing global marketers should focus on is to identify the target audience/countries' cultural dimensions. Uncertainty avoidance cultural orientation should be the first priority to be considered, and secondly, the individualism/collectivism cultural orientation. Marketers' communications can strategically focus on showing explicitly how consumers gain empowerment, and efficiency/effectiveness in different contexts by using mobile technology in high uncertainty avoidance countries/cultures, such as the UK and Taiwan, as they are more likely to be persuaded by explicit information and messages. A vast amount of literature (e.g. Donthu and Yoo, 1998; Furrer *et al.*, 2000; Swanson *et al.*, 2011) points out the importance of understanding the cultural characteristics before introducing services to a new place/country. Whilst such a suggestion is not entirely new, it reconfirms previous findings and highlights the importance of understanding cultural characteristics in the global marketplace.

Despite culture's influence, the perceptions of mobile technology attributes are important because they had a positive impact on consumer loyalty. The perceived

empowerment was thought the strongest but it only showed a significant impact on consumer loyalty in the UK market. This does not mean that only the UK market should focus on maintaining or improving the functions and applications of mobile technology in order to make consumers feel empowered. The reason for not having any significant impact in the Taiwan market may be because Taiwanese consumers have taken 'empowerment' as a basic experience. In other words, if the basic experience is not fulfilled, it may have a negative impact on the intention of consumers to use and explore new functions and applications of mobile technology. Therefore, despite the inconsistent results from the UK and Taiwan, global marketers should still stress the nature of empowerment provided by mobile technology to global consumers. With regard to the perceived competence/incompetence, marketers in the mobile technology industry should strive to emphasise to consumers that mobile technology can create a more efficient and effective lifestyle, and use their marketing channels to tell their consumers what they have to offer. Such a theme is likely to increase the sale of mobile technology products.

However, it is not surprising to find out that the perceived competence/incompetence is the most important experience for mobile technology consumers. As competence is defined as perceiving efficiency and effectiveness, ensuring consumers an efficient / effective lifestyle seems to be the key to success. From an overview of the mobile phone industry, it appears that it has been working on this by the continuous development of the hardware and software of mobile handsets, as well as the infrastructure - for example the recently launched 4G (the fourth generation telecommunication technology) which enables a faster speed of internet connection. The marketing campaigns for mobile handset brands/companies and service providers have also targeted this area, by specifically addressing the functions of the handsets which enable efficiency/effectiveness, or denoting an efficient/effective lifestyle people could enjoy. However, based on the nature of the present research,

some mobile phone paradoxical elements can be added into the marketing strategy in this industry.

Although mobile phones enable flexible working patterns and lifestyles, the work-life balance based on the mobility enabled by the mobile technology is also a topical issue. By being able to work almost anywhere and anytime, people can effectively conduct their work/study-related tasks, but their time with friends or family and time spent on their pastimes are affected both positively and negatively. Wajcman et al. (2007) point out that people feel mobile internet decreases rather than increases their time with friends or family, as well as the time they spend on pastimes. More recently, White (2012), observing from a seaside holiday resort in the UK, reports that far more people interact with their mobile devices than do the beach activities. By being efficient and effective with work/study-related tasks due to mobile technology, people could potentially have more time for themselves and for their friends/families. Therefore, the competence gained from mobile technology can be translated into gaining more time to spend with friends/family, and on pastimes.

Global marketers also need to pay attention to the negative attributes perceived by the consumers. The perceived dependence, as a negative attribute, was perceived as below average, but it had a positive impact on loyalty too. This may not necessarily mean that marketers also need to work on making customers feel more dependent on the technology. Considering again the Facebook usage in both countries: if Taiwanese consumers perceived dependence more strongly than the UK, due to the fact that they use Facebook via mobile phones more than the UK consumers, increasing consumers' interaction with the technology may be a good approach to encourage their sense of dependence on the technology. Alternatively, companies in this industry could be more distinctive than others by infusing the paradoxical concept: by boldly pointing out the negative impact, and suggesting new norms of

utilising this technology. Companies could create themselves a positive image by turning consumers into smart users and showing more social responsibility for what their technology imposes on users and other people. For example, companies can address when *not* to use the technology and so encourage interactions between people who are physically present.

8.5.2 Implications for UK Market

Apart from the implications to the global market, which also apply to the UK market, specific implications for the UK market are addressed here.

Cultural dimensions did not have much impact on British consumers; only uncertainty avoidance had impact on the perceived empowerment/enslavement. Since British consumers' uncertainty avoidance has been identified as high uncertainty avoidance orientation, how to make British consumers feel more empowered by mobile technology based on their high uncertainty avoidance nature is one key to success.

Coping strategies partially mediated the relationship between perceived dependence/independence and consumer loyalty. This implies that perceived dependence/independence might create stress/anxiety for UK consumers. As perceived dependence/independence and consumer loyalty had a positive impact, marketers can work on increasing the engagement between the mobile technology and the consumers (increase the dependence) but, at the same time, find a way to reduce the stress/anxiety created by the mobile technology.

8.5.3 Implications for Taiwan Market

Since Taiwanese consumers have been identified as having high uncertainty avoidance and collectivistic orientation, and both of the cultural dimensions have a positive impact on the perceived paradoxes, marketing communication strategies in

Taiwan should really focus on the cultural elements. Based on these two cultural characteristics, it is important that perceived competence and illusion (expectation) are addressed. A combination of family and friends (collectivistic image) and something to look forward to for mobile technology (expectation) can be an impressive message; clear instructions to use new functions and the visible outcomes for showing the efficiency and effectiveness of mobile technology will also be a good way to persuade the consumers with high uncertainty avoidance orientation to increase their interest in this technology. In addition, multiple marketing channels can be used to deploy marketing communication strategies. Providing more channels and platforms for consumers to gain necessary information about the new functions or products of mobile technology can reduce any uncertainty or ambiguity from the new and unknown features of the products.

After discussing the significance of the findings, and addressing the implications for academia and the industry, the research objectives are now reviewed to see whether all the objectives are met.

8.6 Evaluation of the Research Objectives

Seven research objectives were stated in Chapter 4, *Methodology*. They are listed and reviewed one by one.

Research Objective 1: To identify the cultural dimensions that may influence the consumer experience of mobile technology use.

Cultural dimensions which may influence the consumer experience of mobile technology use were identified, as discussed in Chapter 3, *An Overview of The Culture Theory*, and Chapter 5, *Conceptual Framework*. Four cultural dimensions: individualism/collectivism (IDV), masculinity/femininity (MAS), uncertainty avoidance

(UAI) and indulgence/restraint (IVR) were suggested from the literature that they would have an impact on consumer experience of mobile technology.

Research Objective 2: To investigate UK and Taiwan's cultural dimensions based on a seminal theory from the literature.

The chosen cultural dimensions under investigation were Hofstede's cultural dimensions. The reasons to employ Hofstede's work were addressed in 3.5.1.1 (p. 57). The UK's and Taiwan's cultural dimensions were identified based on the CVSCALE (Douthu and Yoo, 1998), although only uncertainty avoidance and individualism/collectivism had reliabilities acceptable for being included in the analysis. It was concluded that both the UK and Taiwan had high uncertainty avoidance and were closer to a collectivistic orientation, as presented in Table 7.18. As mentioned in Chapter 7, *Findings* (7.5.2.1) the mean scores were not able to be compared because the scalar/intercept invariance between nations was not demonstrated. However, an independent sample t-test was run and it showed that Taiwan consumers had significantly higher uncertainty avoidance than the UK consumers, but the individualism/collectivism scores of the two countries showed no significant difference.

Research Objective 3: To produce a model for mapping the relationships between cultural dimensions, perceived paradoxes of mobile technology, coping strategies employed and consumer loyalty in the mobile phone industry.

A conceptual framework was constructed in Chapter 5, *Conceptual Framework*. A model which showed the relationships between cultural dimensions, perceptions of mobile technology paradoxes, coping strategies and consumer loyalty was made (Figure 5.1 Research Model) based on the extant literature. It was then revised again

based on the CFA results. The new (revised) research model can be found in Chapter 7, *Findings* (Figure 7.11 Revised Research Model).

Research Objective 3.1: To produce a measurement for testing paradoxes of mobile technology and coping strategies.

The measurements for testing the paradoxes of mobile technology and coping strategies were produced following Churchill's (1979) scale development procedures. The measurements are attached as the Appendix VII.

Research Objective 3.2: To analyse the relationship between cultural dimensions and the experience with the paradoxes of mobile technology, coping strategies and consumer loyalty in those two countries.

The relationships between cultural dimensions, consumer experience (perceptions of mobile technology paradoxes), coping strategies and consumer loyalty were analysed and reported (Chapter 7) and are discussed in the present chapter (Chapter 8). Uncertainty avoidance was shown to have an impact on perceived empowerment/enslavement (UK and Taiwan) and perceived competence/incompetence (Taiwan only). Individualism/collectivism only had an impact on perceived illusion/disillusion among Taiwan consumers. Coping strategies acted as a mediator on the relationship between perceived competence/incompetence and consumer loyalty (in both countries) and between perceived dependence/independence and consumer loyalty (only in the UK). Uncertainty avoidance had an impact on consumer loyalty via perceived empowerment/enslavement in the UK sample, and via perceived competence/incompetence and coping strategies in the Taiwan sample. Individualism/collectivism had an impact on consumer loyalty via perceived

illusion/disillusion only in the Taiwan sample too. Perceived dependence/independence was independent from cultural elements, and showed its direct impact on consumer loyalty in the Taiwan sample, and its indirect impact on consumer loyalty mediated by coping strategies in the UK sample.

Research Objective 4: To evaluate the findings on cultural influence on consumer behaviour in technology, making a theoretical contribution in cultural studies and consumer behaviour, and a practical contribution to practitioners in marketing.

As mentioned, the findings were presented and discussed in Chapter 7 and 8 respectively. Theoretical and practical/managerial contributions/implications were addressed in 8.3 and 8.4.

Finally, based on the research objectives, the applications of cultural dimensions, paradoxes of mobile technology, coping strategies and consumer loyalty in cross-cultural quantitative research were conducted and evaluated.

8.7 Limitations

All the research objectives have been achieved, as addressed above. The findings of the research should make a good contribution to both academia and the mobile technology industry. However, limitations are inevitably introduced in different stages of the present research. These limitations should be considered while interpreting the research findings, and they may also pave the way for future research. The limitations can be grouped into two aspects - regarding sample representativeness and inter coder reliability. They are discussed below.

The first aspect is related to the sample representativeness. This can be divided into three aspects. The first one is related to the data collection method, the second one is

related to the unequal gender, and age distribution among the whole sample, and the last one is related to the population of mobile phone users in the UK and Taiwan.

Regarding to the first limitation, the data were collected via a Web-based questionnaire, based on convenience and snowballing sampling techniques. Participants were reached via emails from the researcher and the researchers' contacts. These limited the participants to those who had email accounts and Internet access, and were able to fill in the questionnaire via available devices in their spare time. Those who were not in those categories were either not reached, or did not have devices (e.g. PCs, laptops or tablets) to fill it out in their own time. This then limited the representativeness and the ability to make inference to a larger population (Nardi, 2006; Nardi, 2008). However, conducting a data collection via a Web-based questionnaire was a suitable option for the researcher due to the time constraints and resource availability. This has been addressed in 4.7.3.5.4, *The Limitation of Employing a Web-Based Questionnaire*.

Regarding to the second limitation, the gender and age distribution of the whole sample demonstrated a potential bias. With regard to gender, one third of respondents were male and two thirds female in the whole sample; and a similar gender distribution was demonstrated both in the UK and Taiwan. Based on the gender distribution of UK and Taiwan populations, both of the two countries present an almost equal gender distribution for the age between 15 and 64 (CIA, 2013a; CIA, 2013b) which is the target age range for the present research. As the gender distribution of the sample did not echo the real population, it might have introduced bias into the research. However, a few studies provide some empirical data regarding individuals' perceptions of the use of technology products, and data show an insignificant impact of gender on mobile phone use for text messages and phone calls (Nickerson *et al.*, 2008); attitudes about mobile phone use in public (Mak *et al.*, 2009);

and individuals' perceptions of internet use and the consequences of such usage (Anandarajan *et al.*, 2000). Accordingly, the unequal gender distribution in the present research is unproblematic for the interpretation of the results. Gender's impact on the usage frequency of mobile phones (Mak *et al.,* 2009) and the usage of emails and Internet (Li and Kirkup, 2007) is evidenced, but these are not the focus of the present research.

Age distribution in two countries also showed an inconsistent distribution. The main age range for respondents in Taiwan was between 31 and 45, which accounted for 72.4% of the whole respondents. A very different distribution in the UK sample was shown. The respondents in the UK were more equally distributed, but the percentage of respondents aged between 31 and 45 was relatively lower than each range. It only accounted for 26.3% of the UK respondents. Therefore, it might also have brought in some bias to the research.

The last limitation is related to the sample representativeness to the population of mobile phone users in both the UK and Taiwan. The research findings would be more beneficial if the samples from both countries represent their country mobile phone user population. In this case, it requires the demographic data of the British mobile phone users in the UK, and the Taiwanese users in Taiwan. However, the detail of such demographic data is proven to be difficult to obtain. The sample representativeness for both countries is, therefore, unknown.

The limitation related to the inter coder reliability is concerned with the focus group data analysis. As the purposes of conducting focus group were to validate the existing theory and inform the questionnaire development, the inter coder reliability was not considered in the focus group data analysis.

Based on the shortcomings mentioned, future research should be careful when applying the results to different research contexts. Future research based on the limitations discussed is also addressed in the next section.

8.8 Future Research

Recommendations are provided based on the limitations and the findings of the present research. They are discussed below.

8.8.1 Based on the Focus Groups Findings

The first recommendation is based on the finding from the focus groups which acted as the theory validation instrument. In *Chapter 6, Instrument Development and Data Collection*, the findings of the different perceptions of mobile technology paradoxes between the UK and Taiwan focus groups were briefly mentioned.

People from the UK and Taiwan who participated in the focus groups showed that they perceived paradoxes, but in different ways. One example was given in Chapter 6 (Table 6.5), where the UK and Taiwan groups had different perceptions on empowerment. Taiwanese groups felt empowered by being able to be reached, whereas British groups felt it by being able to reach out. This reflects Hofstede's individualism/collectivism characteristics. The different perception in enslavement between the two countries was also related to individualism/collectivism cultural dimension. Therefore, the empowerment/enslavement paradox was perceived differently by the two countries. Hofstede argues that people from collectivistic cultures are concerned about their in-groups, and seek to protect them, in exchange for loyalty. People from individualistic cultures on the other hand are more concerned about themselves and their immediate family (Hofstede, 2001). In de Mooij's (2000) research, it is shown that people in an individualistic culture tend to have a lifestyle that is less dependent on others. That also means that they also expect others to be

more independent. This would explain the finding that they feel enslaved when they are asked to do something (responding). Coming from a collectivistic culture, Taiwanese participants show their distinctive care for others by readily making themselves available to be reached by mobile phones for any possible assistance at any time, and anywhere. However, the results of the present research show that both countries are closer to a collectivistic orientation. This finding deserves a further investigation, either by conducting more focus groups, or by conducting a quantitative study which aims at measuring the different perceptions both in Taiwan and the UK, or in two countries which possess opposite cultural dimensions.

The last finding worth further investigation concerns disengaging. Groups from both countries perceived that being able to disengage was a good thing for them. As the idea of having a mobile phone is to be able to make communication – to reach out and to be reached - being engaged seems to be one of the positive attribute of the mobile phones; thus being disengaged (from others) should be perceived as a negative attribute. However, it seems that in some instances, being able to be disengaged from what people are doing is considered good. Future research investigating this aspect of mobile technology could provide some recommendations to both academia and businesses.

8.8.2 Based on the SEM Findings

There are two possible future research avenues that arise from the SEM analysis. They are delineated below.

The first one is the significant different perception of dependence between the UK and Taiwan – consumers in Taiwan perceived dependence significantly more strongly than consumers in the UK. As the perception of dependence is free from cultural characteristics, other influencers should be investigated. As stated earlier, the

only difference found from market research in both the UK and Taiwan in this aspect is the usage of Facebook via mobile phones. Taiwan reported 71% and UK reported only 46% of consumers accessing Facebook via mobile phones. As Facebook was reported as the major social networking site in both the UK and Taiwan, the figures from market research (based on Mashable, Reuters etc.) may be able to explain why Taiwanese consumers perceived dependence more strongly. In this regard, further research can help to gain more insights.

The second possible research avenue is the use of this model to predict mobile technology adoption, as listed as one of the theoretical contributions. As discussed in Chapter 2, *Consumer Paradoxical Experience with the Use of Technology and Consumer Loyalty*, most of the extant research that tries to understand and/or predict users/consumers' adoption behaviour towards technology products, uses or adapts the technology acceptance model (TAM) of Davis (1989) and Davis et al. (1989). TAM focusses on two perceived product attributes i.e. perceived usefulness and perceived ease of use. Many scholars adapt TAM and extend TAM to their models e.g. TAM 2 by Venkatesh and Davis (2000); TAM 3 by Vankatesh and Bala (2008), and UTAUT by Venkatesh et al. (2003), and c-TAM by Bruner and Kumar (2005) who extend TAM to a consumer context. An alternative model, which considers consumers' technology readiness and how products' perceived values and risk will determine the intention of users to adopt them, is proposed by Chen and Mort (2007). All of these models focus on the users' perceptions towards product attributes/characteristics. The present research focusses on using the post-adoption experience and its coping strategies to predict the intention to continue using or exploring new functions/applications of mobile technology. Future research can focus on combining TAM and the model presented by the present research. This will offer a better understanding of the intention of consumers to use existing technologies, and will help to predict their user-behaviour of future technologies.

8.8.3 Based on Limitations

Previously mentioned in 8.7, the limitations could draw some new ideas for future research. The present research would recommend two possible research projects highlighted below.

The first possible research avenue is to increase the sample representativeness. Employing a Web-based questionnaire, excluding potential participants who do not have internet access, and the unequal age and gender distribution across UK and Taiwan samples, demonstrate an unrepresentativeness of sample. Future research can focus on collecting data via both a Web-based and a paper-and-pencil questionnaire. The researcher should monitor the status of the data collection and adjust the strategy to reach the target audience accordingly e.g. need to use paper-and-pencil questionnaire to recruit more male participants, aged between 50 and 60, etc.

The second research avenue is to investigate the reasons for the unequal gender distribution. The unequal gender distribution across both the UK and Taiwan respondents draws out two research ideas. Firstly, the number of female respondents was twice as high as the number of male respondents in both countries. Whether females are more interested in filling questionnaires online (or maybe off-line too), would be a possible angle from which to investigate the unequal gender distribution. The other possible future research is the gender's influence on the pass-along effect (passing the emails to others) in electronic word-of-mouth (eWOM). Some studies investigate the pass-along effect for online survey (Norman and Russell, 2006) and eWOM/viral marketing advertising (Phelps *et al.*, 2004), but none point out whether gender plays a role in the pass-along effect. Particularly in Norman and Russell's (2006) studies, the gender distribution in their respondent profile also shows a

significant unequal one – 15.7% of male and 84.3% of female respondents (93.2% respondents were based in U.S.). Future research in this aspect can make a contribution to viral marketing.

8.9 Conclusion

The present research has reviewed the extant research and consolidated a framework to guide future research in the pursuit of a further understanding in the relationships between cultural dimensions, consumer experience in using mobile technology and consumer loyalty. The findings from the present research suggest that consumers' intention to increase their usage or to use more advanced mobile technology can be explained by their cultural dimensions, perceived paradoxes of technology and coping strategies. The results of the research have provided valuable information for future researchers and practitioners, as the contributions to cross-cultural research, marketing theories, as well as the mobile technology industry are discussed in detail above.

Appendix I Cover Letter for Focus Group Participant Recruitment

Dear Sir/Madam,

I am currently reading my PhD in marketing at Oxford Brookes University. I would like your help by participating in focus group discussions.

My research aims at finding out the influence of culture on consumer experience in using mobile technologies, particularly as regards mobile phones.

My target audience is British and Taiwanese citizens aged between 16 and 60 years old, who are mobile phone users. I intend to hold two to three focus group sessions for each nationality, with six to seven participants in each group discussion. Each focus group session will take less than an hour.

All information obtained from the focus group sessions will remain confidential (naturally, subject to legal limitation) and anonymous. Data collected will be stored both in my laptop and computer at Oxford Brookes University, which both require a set of passwords to log in and get access to the data. Data will be retained in accordance with Oxford Brookes University's policy on academic integrity, and we will keep information gathered in paper and electronic form fully secure for a period of five years after the completion of the research project. Please note that the research has been reviewed by the Oxford Brookes University Research Ethics Committee, and if you like any further information in this regard, please contact the committee chair on ethics@brookes.ac.uk

If you are interested in participating in my research, please email/phone me so that I can make the necessary arrangements. You can find my contact details below.

I would be grateful if you could also help me to check if any of your friends might be interested in participating in this study. You can simply forward this email to them.

If you have any questions, please do not hesitate to let me know.

Many thanks for your help. Have a good day.

Maureen

Maureen Pei-Fang Li
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Appendix II Participant Information Sheet for Focus Groups

Dec, 2010

OXFORD BROOKES UNIVERSITY

Ref: The consumer experience in using mobile technology by British and Taiwanese users

First of all, please allow me to introduce myself. My name is Maureen Pei-Fang Li, a PhD student in the Department of Marketing and Operations Management, Business School, Oxford Brookes University. As part of my research, I would like to invite British mobile phone users to participate in focus group sessions. However, before you decide if you would like to participate in this research, I would like to explain why this research is being undertaken and what it will involve. Therefore, please read the information below:

Purpose of the study
The purpose of this research is to investigate if cultural background would influence consumers' experience in using mobile phones. In this research, two cultures/countries are involved in order to compare the differences/similarities. The countries are Taiwan and UK. By investigating this theme, it is hoped that a better understanding of cultural issues in marketing studies will be addressed.

Participants

Who can help?
I would like to invite British and Taiwanese mobile phone users, aged between 16 and 60 to take part in this research. The definition of British and Taiwanese will be those who are citizens in those two countries AND have lived in those two countries for the past 10 years. If you fit into the criteria, I would welcome your participation. Participation in this research is completely voluntary. As a participant you are free to withdraw from the research at anytime.

What will you contribute?
If you would like to take part in this research, your contribution would be invaluable. By participating, you will be helping to deepen academic knowledge on this issue, which is currently overlooked. Anyone participating in this research will not be identified in any subsequent reports or publications.

How will it operate?
A focus group discussion is a group discussion consisting of six to seven participants whom you may know or may not know. Two to three focus groups will be conducted from each nationality - therefore, a maximum of six focus groups from the two nationalities, and a maximum of 42 people. Audio taping/recording will be used in these sessions. Participants will not be named.

If you decide to take part in this research, please send me an email (contact details provided overleaf), and I will make contact with you. Each focus group will last no more than 60 minutes.

Where will it take place?
The focus group sessions will most probably be conducted on Oxford Brookes University premises. I will book a meeting room for the sessions. The focus groups may also be arranged in other public premises, if that is preferred by the participants.

Confidentiality
All information obtained within the focus group sessions will remain confidential (naturally, subject to legal limitation) and anonymous. Data collected from the focus group sessions will be stored both in the researcher's laptop and computer at Oxford Brookes University, which both require a set of passwords to log in and get access to the data. The data will be retained in accordance with Oxford Brookes University's policy on academic integrity, and we will keep information gathered in paper and electronic form fully secure for a period of five years after the completion of the research project. Please note that the research has been reviewed by the Oxford Brookes University Research Ethics Committee, and if you like any further information in this regard, please contact the committee chair on ethics@brookes.ac.uk

The Findings
The results of the focus group sessions will be consolidated together with the data gathered from British and Taiwanese counterparts, and contribute towards the contribution of a questionnaire. The questionnaire will act as the tool for further quantitative data collection that is required to complete my doctoral thesis. In addition, the findings (questionnaire) may also be used in other research and published in journal articles and conference proceedings. The questionnaire will be finalised no later than March 2010. You are most welcome to view the results. Please inform me if you would like to do that and I can also provide you with the study's general findings in due course.

Organisation of the Research
The research is organised by myself, with the help by my PhD supervisors, Dr David Bowen (dbowen@brookes.ac.uk, + 44 (0)1865 483426) and Professor Yuksel Ekinci (yekinci@brookes.ac.uk, + 44 (0)1865 485488). Please feel free to make contact with them if you have questions about the conduct of this research.

Thank you
May I offer my sincere thank you for reading the information and considering the possibility of taking part in this research. If you have any enquires, queries or just general questions please do get in touch with me at anytime.

With my best wishes,

Maureen (Pei-Fang)

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Appendix III Cover Letter for Questionnaire Distribution (Email)

Dear Sir/Madam,

I am currently reading my PhD in marketing at Oxford Brookes University. I would like your help in filling out a web-based questionnaire for my research.

My research aims at finding out the influence of culture on consumer experience in using mobile technologies, particularly as regards mobile phones.

This is an anonymous questionnaire containing five sections. It will take you around 15 minutes to complete. Once you complete it, the data will be uploaded and you do not need to send anything back to me.

The data collected will be stored securely on computer, and the online survey centre (SurveyMonkey.com), which all require a password to log in and can be accessed by myself only. The result of the questionnaire will not be used commercially.

My target audience is British and Taiwanese citizens aged between 16 and 60 years old, who are mobile phone users. If you are my target audience, please help to complete this questionnaire. No sensitive information is required. Please feel safe to answer it.

All information obtained will remain confidential (naturally, subject to legal limitation) and anonymous. Data will be retained in accordance with Oxford Brookes University's policy on academic integrity, and we will keep information gathered in paper and electronic form fully secure for a period of five years after the completion of the research project. Please note that the research has been reviewed by the Oxford Brookes University Research Ethics Committee, and if you would like any further information in this regard, please contact the committee chair on ethics@brookes.ac.uk

I would be grateful if you could also help me to check if any of your friends might be interested in participating in this study. You can simply forward this email to them.

Further information is provided in the information sheet on the first page of the web-based questionnaire below:

www.surveymonkey.com/kksfjd

Many thanks for your help. Have a good day.

Maureen (Pei-Fang)

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Appendix IV Participant Information Sheet for the Questionnaire

December, 2010

Ref: The consumer experience in using mobile technology from British and Taiwanese users

First of all, please allow me to introduce myself. My name is Maureen Pei-Fang Li, a PhD student in the Department of Marketing and Operations Management, Business School, Oxford Brookes University. As part of my research, I would like to invite British and Taiwanese mobile phone users to participate in answering a web-based questionnaire. However, before you decide if you would like to participate in this research, I would like to explain why this research is being undertaken and what it will involve. Therefore, please read the information below:

Purpose of the study
The purpose of this research is to investigate if cultural background would influence consumers' experience in using mobile phones. In this research, two cultures/countries are involved in order to compare the differences/similarities. The countries are Taiwan and UK. By investigating this theme, it is hoped that a better understanding of cultural issues in marketing studies will be addressed.

Participants

Who can help?
I would like to invite British and Taiwanese mobile phone users, aged between 16 and 60 to take part in this research. The definition of British and Taiwanese will be those who are citizens in those two countries AND have lived in those two countries for the past 10 years. If you fit the criteria, I would welcome your participation. Participation in this research is completely voluntary. As a participant you are free to withdraw from the research at anytime.

What will you contribute?
If you would like to take part in this research, your contribution would be valuable. By participating, you will be helping to deepen academic knowledge on this issue, which is currently overlooked. Anyone participating in this research will not be identified in any subsequent reports or publications.

How will it operate?
The questionnaire will take you around 15 minutes to complete. No sensitive personal information is required. If you decide to take part in this research, please simply press ''Next'' at the bottom of this page, and start answering the questionnaire.

Confidentiality
All information obtained from the questionnaire will remain confidential (naturally, subject to legal limitation) and anonymous. Data collected will be stored both in the researcher's laptop and computer at Oxford Brookes University, which both require a set of passwords to log in and get access to the data. The data will be retained in accordance with Oxford Brookes University's policy on academic integrity, and we will keep information gathered in paper and electronic form fully secure for a period of five years after the completion of the research project.
Please note that the research has been reviewed by the Oxford Brookes University Research Ethics Committee, and if you like any further information in this regard, please contact the committee chair on ethics@brookes.ac.uk

The Findings
The data from the questionnaire will be analysed and contribute to my doctoral thesis. In addition, the findings may also be used in further research and published in journal articles and conference proceedings. You are most welcome to view the results. The studies are expected to be competed by December 2011.

Organisation of the Research
The research is organised by myself, with the help by my PhD supervisors, Dr David Bowen (dbowen@brookes.ac.uk, + 44 (0)1865 483426) and Professor Yuksel Ekinci (yekinci@brookes.ac.uk, + 44 (0)1865 485488). Please feel free to make contact with them if you have questions about the conduct of this research.

Thank you
May I offer my sincere thank you for reading the information and considering the possibility of taking part in this research. If you have any enquires, queries or just general questions please do get in touch with me at anytime.

With my best wishes,

Maureen (Pei-Fang)

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Appendix V Partial Focus Group Transcripts and Themes Identification Example

Sample:

Focus Group British Group A

P1 - male (aged between 50 and 55); P2 - male (50 and 60); P3 - female (45 and 55); P4 – female (16 and 25); P5 – female (16 and 25); P6 – male (16 and 25).

Transcripts:

R(researcher): Can you tell me about the advantages of having or using mobile phones?

P3: I am a working mother, and I have two sons, we, have two sons, one is 17 and the other is 12. And one of my sons has type I diabetes. When he goes out, I am glad that he has mobile phone with him, so that I can get in touch with him **[be able to reach out - empowerment]**, well, both of them. It's very convenient, very handy. I think if there's no mobile phone, I wouldn't allow them to go out as much as they do now. They wouldn't have much freedom**,** so it's a great advantage. **[empowerment]**

R: So you think you feel safer..

P2: But be honest, most of time, they are out of credit, out of battery, or being stolen or lost

P3: Well, not all the time. But they tend to over use it, talking to their friends. So they still try..

R: So you can also see the disadvantages of having a mobile phone..

P3: Yes,…well, they …born in digital, they are too ….to them, they use it all the time..they use it to go on Facebook, they use it for everything, while I only use it for texting and phonecalls, and very rarely, taking pictures…that's it

R: So, you mean that A (Her son) would use his phone to talk to his friends, when you are in the same room with you..

P3: Yes, they tend to interact with each other. They talk more with their friends than with their parents.

R: What do you feel about this?

P3: It's inevitable, it's their world..

P2: P4, you have to give an opposite argument…

P4: Well,…I definitely feel safer to go out when I have a mobile phone with me, in case something happens, I can always call someone **[fulfil needs]**…and kind of panic of the battery is running low or something **[stress/anxiety]**..

R: So, what do you do to solve the problem of having the fear when you mobile phone battery is running low.

P4: Well, if you are with your friends, you can use their phones **[dependence]**..

P3: That's what my kids do I have to say. They always use their friends' phones. That's why I always have to call back to them when they run out of the credit. At least they always call me where they are, what they are doing, I always return their call, whatever phone they use, as long as I know I can always contact them

P5: Places like airports and coaches are good for plug socket. I often have my phone charged on the coach or at the airport or something

R: So, you mean that you always bring a charger with you?

P5: Yes, I do. Because especially.. I use trains quite a bit, so if I am out the whole day, (it) can run low, because I use it for the purpose, to ring the train line if they run late or normal or something, I use it a lot for travel purposes [fulfil needs].

P5: Often…that I forgot to charge it at home, so I have one to put in my bag…I have two chargers , one is at home, one is in my bag [create needs], I just run out of battery too often..

R: That's why you bought another charger of you just happen to have two?

P5: I bought another one….[create needs]

P1: I use my mobile phone a lot, it's very good to get the calls straightaway **[empowerment]…**and I know I am not missing any call..which worries me

[enslavement]…sometimes I switch my mobile phone off by accident..there's a small switch that silences it….so maybe for the whole day I've got it switched off…it's actually on, but I can't hear it ringing..at the end of the day, I find that I haven't been receiving my calls, I have panic attack…a slight one. And in my mind, I have been thinking all these people complaining that…'why didn't he pick up? Why he hasn't been returning my calls **[enslavement]**….so I like mobile phones so I can attain immediately …if something's going on or wrong, I can know about it as soon as possible and deal with it, and do something about it…that's good. But sometimes I wonder why I feel in this way. Because 20 years ago, when we didn't have mobile phones, if someone couldn't contact me, that's a good reason to not knowing something was going wrong, or what needed to be done…so I didn't feel guilty for not responding quickly..when somebody couldn't contact me in 24 hours, I had a good excuse, that I was not informed. But I haven't got the excuse anymore..and it's always a kind of self-fulfilling prophecy …but now I don't have the excuse…I have to respond quickly…it's more like a duty **[forced to reach out- enslavement]**..I have to be closed to my mobile phone,..it's gotta be working, I've gotta be able to hear it, going off **[forced to reach out - enslavement]**, ..

R: But do you like the feeling of obligated to answer the phone? Because you said that before, if someone couldn't reach you in 24 hours, you would have the excuse to not respond, but now you wouldn't have the excuse anymore..

P1: to answer that question…there's nothing I can do about it….i had the excuse, and now looking back, I realise how nice it was to have that kind of excuse. But the gene is out of the bottle, we cannot go back to the time **[be reached – enslavement].** Unless you are in somewhere that the signal is not good…

R: does anyone use this excuse that you couldn't be reached?

P2, P5, P1: I do..**[create needs]**

P1: And I also know when someone answered their phone, and they heard it was me, and then they would say: hello, hello? I cannot hear you..i can't hear you…and then, they hung up. ..so suddenly, you pretend that you didn't get a proper signal..

P2: I've done that, I've done that..

R: by saying that, you said that you wouldn't have any excuse to miss any phone calls

P1: Sometimes when I phoned to people's mobile, and they didn't pick up, and I think – why you don't pick up! If I phone up to a landline, if no one picks up, I would think that they are out…but if I phone up some body's mobile, I am not as tolerate as landline **[dependence]**.

P3: You can leave a message then..

P1: I could, but I don't like to leave messages…I prefer some body would pick it up..I suppose they might be driving, they could be in a meeting, they could be in all sorts of places, they don't have a button on the mobile phone now, and say: I am driving, or I am in the meeting…so you could immediately know what they are doing..

P3: You have a meeting mode on the phone you can set it to….should be able to let people at the other end knows that you are in a meeting

P1:….Yes, saying I am in a meeting, or I can't get to my phone..we need excuses..

P3: Yes..

R: But at the same time, …if you are driving, would you pick up the phone?

P3: it depends on who calls..

Appendix VI Focus Group Analysis and Results

Empowerment/Enslavement Paradox

Empowerment
Both nationalities perceived the empowerment by being able to reach out, and both being able to reach out and to be reached. Only the Taiwanese participants showed the empowerment by being able to be reached.

Enslavement
Participants from both countries perceived the enslavement from constantly being reached. Only British participants showed a feeling of enslavement in being required to respond (reach out).

The statements from both nationalities are listed below:

	British	Taiwanese
Empowerment	**By being able to reach out** • I wouldn't allow my kids to go out as much as they do now, if there are no mobile phones. • Mobile phones help me be able to reach my kids. • I can always tell my parents where I am; if I change my plan, I can tell them and let them know. • I send text messages to people because this is the way I avoid chatting with friends when I don't have time for that. • If I am stuck in somewhere, I can call someone easily **By being able to reach out and be reached** • Mobile phone is good, it helps you keep in contact with people, people like far away. • People can represent themselves for business purpose while they are walking their dogs in the park. • I can talk free to my dad in the States via Internet. • Mobile phones are like the connection with the rest of the world	**By being able to reach out** • Now I can go fishing. Before I couldn't go because my family complained that they couldn't reach me if I went fishing • It's easy to reach out. • I can hear my children's voices when I am not with them. • You can show your care to other people. You can call them wherever you are and wherever they are . **By being able to reach out and be reached** • Mobile phone gets people to be connected to each other. • I can talk to my friends/relatives overseas via Skype anytime, and anywhere **By being able to be reached** • People can reach me whenever, wherever they are and wherever I am. • When people need me, they can reach me.

	British	Taiwanese
Enslavement	**By needing to reach out** 1. Now I don't have the excuse in not being informed. I always have to respond quickly, it's like a duty. 2. I feel bad when I didn't text back (immediately) to my boyfriend because I know he would get funny if I didn't. **By being able to be reached** 1. I realise how nice it was to have that kind of excuse that I didn't get the calls, but I cannot go back to the time when there's no any mobile phone. 2. I have to be close to my mobile phone. It's ganna be working, I've gotta be able to hear it. **3. Sometimes it is quite relieving when the phone is not with me, because it is just too much that people can ring you and text you anytime. When I go for a walk without my mobile phone on, and come back to see a couple of texts on it, and someone rang me….it's too much.** 4. If you see a phone ringing, you have to get it! 5. I can imagine if my parents ring me all the time, I would get very annoyed. 6. Some people just need to know what you are doing every second! 7. From mobile phone, I can tell them (friends or parents) everything I have done, but not to update them every 5 minutes (friends/parents call all the time). 8. My mobile phone is constantly charged, constantly by me, it's constantly on, because people need to contact me via phone calls, text messages, and my 2 email addresses, but I hate it.	**By being able to be reached** 1. I can be reached by my boss or clients easily even when I am on holiday 2. I feel nervous when the phone rings – I feel obligated to answer it, and I don't really like it 3. I don't have my freedom anymore. I am constantly reminded about the things I need to do via mobile phones. 4. I cannot switch off because people would get angry if they couldn't reach me 5. People cannot find me if I don't have my mobile phone with me. 6. Using mobile phone seems to be compulsory. Everyone expects you to have it with you. 7. Mobile phones help my wife to extend her territory over me 8. I think I could live without mobile phones, but I still need to carry it with me. **9. I feel free from being reached when my phone is not with me** **10. I can have a peace of mind for a while when I forgot to bring my mobile phone with me** 11. I don't like mobile phones, but I need it for my work.

Independence/Dependence Paradox

Independence
Participants from both countries showed that mobile phones make them feel independent from relying on other people's help, they could take charge by themselves.

Dependence
Participants from both countries showed the dependence on the mobile phones' total connectivity. British participants showed their friends' expectation on connectivity, whilst Taiwanese participants showed more on what they expected from their friends.

The statements are grouped as below:

	British	Taiwanese
Independence	1. If something is going on or wrong, I can know about it as soon as possible and deal with it, and do something about it. 2. The GPS system helps me to find where I am, so I am able to get the place I want to be. 3. I can know where I am if I am lost and my phone have signal to check on GPS	1. When I am away (from landline Internet/PC), I can use the Internet in my mobile phone to deal with some stuff.
Dependence	**Dependence from participants** 1. If I didn't have my phone with me, I would feel lost. 2. I feel lost without my phone 3. If I had to pick up my daughter or she needed immediate help, I would think I didn't have the 'tool' to help her. **Dependence from people around (friends' expectation on connectivity)** 1. If you didn't get your friends to reply your text messages, you felt annoyed. 2. One of my friends constantly send text messages to me and my friends, and when we didn't text back quickly, she gets annoyed. 3. My friend gets paranoid if I don't reply her text. 4. The ability to talk to anyone at anytime makes people impatient – if people cannot talk to the person they wish to talk to at the point of time, they get frustrated.	**Dependence from participants** 1. I feel panic and aimless if I forgot to bring my mobile phone with me. I wouldn't know what time is it now, where to meet my friends, and cannot call my friends to ask them either. 2. I don't feel secured when my mobile phone is not with me. **Dependence from people around (participants' expectation on connectivity)** 1. I always expect other people's responses to my Facebook posts (status), so I constantly check my phone for my Facebook page, and I want to respond to them as soon as possible. 2. Unnecessarily checking the phone constantly, it has become an addiction to check on the phone every few seconds 3. If the members of my family didn't respond me within a certain period of time, I would be worried that something might happen. 4. I have expectations on receiving or not receiving phone calls or messages from someone particular

Fulfil needs/Create needs Paradox

Fulfil needs
Participants from both countries felt that mobile phones made them feel safer (for the first two statements from both countries). The other trend in this part was about fulfilling the needs in enhancing daily life (experience) by using different functions and applications.

Create needs
Both nationalities showed that mobile phones created needs in enhancing phone operations, protecting data and enhancing security, purchasing items for or via phones, and the need in protecting expensive/delicate mobile phone handsets. Two differences emerging from the data – British participants showed that mobile phones created needs in 'being disconnected'. Taiwanese groups showed that mobile phones created new business opportunities in developing new applications to fulfil different needs from having mobile phones.

The statements are grouped as below:

	British	Taiwanese
Fulfil needs	**Needs in feeling safe** 1. I feel safer to go out when I have my mobile phone with me, in case something happens, I can always call someone. 2. I think the age of people getting mobile phone is getting younger, I think it's for security for their parents, because they can contact them anytime. **Needs in enhancing daily life** 1. I can download the magazine I want to read on the bus (app, Internet) 2. I can check the emails from my phone to know if there's any change of the class or classroom. I don't need to switch on my computer to check it.(check info via Internet) 3. I can have my ticket on my phone while I am travelling, (app) 4. I called my friend to ask where the lecture room was 5 minutes before the lecture, so I could still make it to the lecture.	**Needs in feeling safe** 1. I feel safe when my mobile phone is with me. When I walk alone on the way to somewhere, when I reach out my pocket and my mobile phone is there, I feel safe 2. I talk on the phone when I am walking home alone, I feel safer to do that. Because if anything happened, the person I was talking to would know what happened, and they could help me too. **Needs in enhancing daily life** 1. It's easy and quick to take photos from my phone. The quality is good too. Cameras are too big to carry around all the time. (function wise)

	British	Taiwanese
Create needs	**Needs in enhancing phone operations** My house needs a signal box to improve the signal problem **Needs in being disconnected** • A need to be in somewhere without good receptions/signals sometimes. (need to be disconnected) • A need to stay on '**no mobile phone connection'** on long haul flights. It's a place where in the long hours, no matter what happened, no body would blame me at all. I wouldn't be expected to puck up my mobile. It's one place of peace in the world. (If they introduce mobile phone signals to long haul flights, I would throw myself out of the airplane) **Needs in security/data protection** • I think **kids** are more **vulnerable** in phone scams, because it (mobile phone) is a channel that people could approach them. We need to protect our kids more. • Via **Bluetooth**, your phone would be **vulnerable** because people could hack in your phone. Phone security in short-range transmission is needed. • If my mobile phone was stolen, I would feel sick because I knew someone was using my phone, looking at my address book. It's a security risk. **Needs in purchasing stuff for/via the phone** • Impulse purchase – like purchasing e-books has been really easy now. (1. Buying stuff for your phone, 2. Buying stuff via your phone (apps) • Buying new cases, APPs (applications), hands-free kits, etc.. **Needs in protecting expensive phones** • I feel vulnerable if I have a trendy phone with me. I wouldn't want to get out with, like an iPhone 4, because I would be afraid someone would mug me • Now I have this (iPhone 4), I always feel panic when I couldn't find it, or drop it. Before I had this, I wouldn't care if I dropped it . **Needs in new regulations** Need to have phone adequate –	**Needs in enhancing phone operations** • Battery life is always a problem. Sometimes I need to carry a charger with me if I am going away (from my home) for a while **Needs in security/data protection** • I don't like those scam calls – someone needs to protect our personal information. (protect data) • I need a way to protect the data in my phone. I am afraid the data and information in my phone would be used by other people if I lost my phone. (the data are normally text messages, photos, emails, phone numbers and phone logs) **Needs in purchasing stuff for/via the phone** • I tend to buy some stuff for my phones – like screen protection films, change the colour of the cases. • I am afraid to damage my phone because it's a touch-screen phone. So I use screen protection film to cover it. **Needs in protecting expensive phones** • I think those people who use expensive phones put themselves in danger – they might become the targets of any sort of crimes. **Needs in developing new applications** • Now there are many different applications to help people to get away with being checked where they are or what they are doing. One application is called situation modes – you can select the background mode when you talk to people. So if you don't want to talk to someone, you can use the MRT mode – very noisy and meaning that the call might be cut off anytime. • I think many business opportunities have emerged because of mobile phones. A lot of apps (applications) are there to make up and strengthen our mobility and flexibility. • **Needs in reducing hazard** • I am concerned about the electromagnetic waves, so I use hands-free kit for phone calls.

Competence/Incompetence Paradox

Competence

Participants from both countries perceived competence by feeling effective, and both effective and efficient. But Taiwanese participants considered that mobile phones make them be more effective, whilst the British counterparts considered they were both more effective and efficient.

Incompetence

Participants from both nationals perceived the incompetence in having eye problem because of checking/reading from the small screen. They also both perceived that, being relying on mobile phones, people lost some abilities and responsibilities in taking care of themselves. Taiwanese participants perceived a sense of incompetence in learning the complicated functions mobile phones provided.

The statements are grouped as below:

	British	Taiwanese
Competence	**Effective** 1. Technology provides an interface for people to speak to each other. 2. I can store many phone numbers in my phone 3. With the use of mobile phones, I can do business without an office **Effective and efficient** 1. I could be more responsive than I would be, if I had an office 2. People cannot tell if I am an individual or part of a big organisation, I can respond and represent myself almost identically to them. 3. When I went to Italy, I switched on my phone, and it told me what restaurants were around in a short time. 4. I can check travel information, to see if anything happened, caused any delay, it's really helpful	**Effective** 1. I use emails from the phone for work related stuff. 2. I can read e-book from my phone anytime. 3. I use my phone to take photos of the lecture slides, so I don't need to take notes in the class. When I need to do revision, I just need to check the photos. 4. I use my mobile phone to retain my social life. I have more time to interact with friends from Facebook on my phone. 5. Mobile phones provide many ways to communicate with people. **I can choose the way I feel more comfortable to communicate** with people. **Effective and efficient** 1. I use Google map from my phone, it is just like using it in my PC. I found my way very easily.

Incompetence	**Eye problem** 1. It is more likely to have short-sighted problem if you read things from a small screen. 2. My eyesight gets worse, I think this is something to do with reading articles from my phone screen. **Removal of responsibility and ability** 1. I think for young kids, mobile phone is like a removal of responsibility, the responsibility to look after themselves. They put common sense aside, because they have a mobile phone to reach out to ask for help. So if the phone is out of battery, if there's no signal, they are stuck! 2. I don't know what to do if I don't have my phone which I was travelling. 3. I found out that some people behave differently when they talk face to face and talk via text message or Facebook. Some people reply on talking via technology, they don't know how to talk to people face to face.	**Eye problem** 1. It is more likely to have short-sighted problem if you read things from a small screen. **Removal of responsibility and ability** 1. I used to be able to remember more than 200 sets of phone numbers by heart, but now I can't even remember my own number. 2. If I don't bring my phone with me, I can always find a public phone to make phone calls. But I still cannot make any phone calls because I don't remember any of my friends' phone number. 3. Playing games on my mobile phone while I am on the bus or train is fun, but I am afraid that I would miss my stop. **Don't know how to use functions** 1. Functions in the phone are far more what I need. I don't really know how to use some of them

Planning/Improvisation Paradox

Planning

Both nationals showed that mobile phones made them more organised by helping them arrange and keep up to their schedule. At the same time, they perceived an opposite feeling under the same context – being in the know. Taiwanese participants considered it was good to be updated on what's going on, whilst the British counterparts considered that it was far less relaxed if everything is needed to be informed.

Improvisation

The data from both countries were quite different, but it still can be summarised as two themes – allowing flexibility and punctuation issue (only discussed in Taiwanese groups). British groups seemed to take 'being late' as being flexible, mobile phones helped them better arrange meet-ups. The statements are grouped as below:

	British	Taiwanese
Planning	**Help in scheduling** 1. If I didn't have my phone with me, I wouldn't be able to arrange and organise things. **Being in the know (bad)** 1. Now you always need to phone in even when you want to pop in, everything has to be planned ahead, it's far less relaxed.	**Help in scheduling** 1. My mobile phone helps me to organise my time better. I use calendar to mark my appointments, and to-do list to remind me things I need to do. **Being in the know (good)** 1. I like to be informed if there's any change of the plan or someone is going to be late or not coming. It's good to be in control in an event.
Improvisation	**Allowing flexibility (good)** 1. I can call to make a casual appointment with people when I am around where they are/live. Whilst before, you always needed to make an appointment 2 to 3 weeks in advance. 2. It's good to have a mobile phone with you so we can always inform other friends that we have moved to another place (for meeting up).	**Punctuation issue** 1. People start being late, because they think they can always call to say they will be late 2. I am normally angry when people call me to say they will be late. Because that means we will have less time to do other things 3. People phoning up to say they will be late is good, because I wouldn't wait without knowing what's going on. 4. I feel good and bad at the same time for being able to tell or be informed that you or they will be late **Allowing flexibility (bad)** 1. People seem not to plan for the meet-up as much as before. 2. People don't seem to plan things anymore

Engaging/Disengaging Paradox

Engaging

Participants from both countries seemed to enjoy the abilities which are enabled by mobile phones to be able to do a few things at the same time, especially the ability that people can be engaged in different events while they are not physically around.

Disengaging

Participants from both countries were aware of people's disengagement when they use mobile phones. Therefore, one theme is the feelings about other people's disengagement. The other one is that participants felt great to be able to disengage from what they were doing. But in British focus groups, they also mentioned about what other people would think if they disengage themselves.

The statements are grouped as below:

	British	Taiwanese
Engaging	1. I feel good to be able to meet up with friends and answer my business calls/emails from work at the same time. 2. There are so many things I can do now – I can do business and work on my personal things at the same time. 3. You can text to Facebook and become very social 4. My dad travels to London twice a week, and he always answers his phone on the train, and gets things (work-related) done at the same time.	1. I feel good to be able to meet up with friends and answer my business calls/emails from work at the same time. 2. Using hands-free is very good when riding on my bike. I can pick up the phone immediately.

	British	Taiwanese
Disengaging	**Feelings about other people's disengagement** 1. If you are meeting someone for a dinner or something, it's really annoying when you find them putting their mobile underneath the table and playing with it. 2. It's annoying that when I try to have conversation with someone who is on the phone (they are distracted) 3. My dad answered his work phone even when we were on holiday. My mum was not happy about it. 4. Over a dinner, when the other party is playing with his/her mobile phone, you can see the conversation is flagging. 5. People give priorities to the phone calls instead of people who are having meetings with them. It's very wrong. 6. My kids tend to over use the mobile phone, they talk and interact with their friends more than their parents. 7. I do worry about my kids, they plug in their earphones and then they are in their worlds. But they don't realise there's a real world around them. **Self-conscious in disengaging** 1. If you are always texting, people around you find it annoying. 2. You are always texting (do not talk), it's very distracted, anti-social. 3. The ability to talk to anyone at any point does not mean that you are inclusive in where you are physically in, because you can talk to anyone, whenever **Good about being able to disengage** 1. If I am in a boring meeting, I can send text messages out to other people.	**Feelings about other people's disengagement** 1. I feel disrespectful when people play with their mobile phones all the time while we are having a gathering. It looks like they didn't want to be there with us. 2. I saw people having lunch together, but everyone was doing their own thing – replying text messages, emails, answering phone calls, and making phone calls. That is strange, because it seems like they don't need to have lunch together, because they don't talk to each other much. 3. I am angry with my son because he constantly checks and plays on his mobile phone, it seemed like he was not listening to me. 4. My mum always gets angry with me because I check my phone very frequently. 5. I don't like people do their own stuff on their phones while they agreed to meet up at a certain time. 6. I don't like people's phones ring or they answer their phones in the middle of the meetings, seminars or presentation. **Good about being able to disengage** 1. When I don't know what to say in a group gathering, I play with my phone, that would avoid some awkwardness. 2. When I use or play my mobile phone in the group gathering, it indicates other people that I am bored. 3. When I feel bored, I find things from mobile phones to play with, instead of trying to talk to people around me.

Public/Private Paradox

Public

Participants from both countries showed the negative attributes of the phone used in public places. None of the opinions showed that being able to conduct private conversation in public space was a good thing.

Private

Participants from both countries showed that they needed privacy when they conducted their public communication, and British participants showed it more than their Taiwanese counterparts. The statements are grouped as below:

	British	Taiwanese
Public	1. If you talk to someone next to you on the train, other people wouldn't hear it. But if you talk to some body on the phone, half of the carriage could hear you. 2. People just talk everything on the train – financial results of a company, their meeting plan, the content of their meetings. From Paddington station, by the time when I got to Slough, I've known all the meeting contents these people got. 3. The noise of mobile phones could upset people slightly. 4. I went to a funeral, and there were 250 people there, it was a very moving occasion and suddenly some body's mobile phone went off in the church, in the very moving moment. Everyone was distracted from what they were doing – grieving or other stuff..It was just awful. 5. A train/bus journey is always interrupted and can be interesting by hearing other people's conversations over the phone. But I just hate that. 6. On the bus/train, even hearing the ringtones irritate me. 7. When people talk loud on their mobile on the bus, I cannot concentrate on my own stuff.	1. I feel annoyed when people talk loud about their private stuff on the bus. 2. I am normally fine when people talk about their private life in the public, but not in a place where everyone is stuck and going nowhere, such as on the train or bus. I couldn't go anywhere but listen to the conversation, I don't like that. 3. I don't like other people know where I am. So I don't like those applications that would reveal where I am. (check-in application – when people go to a place, their Facebook status would show they are there at the very time) 4. I don't understand why people don't switch off or turn the volume down or to vibration in the class 5. I found it strange to over-heard people's private conversation in the public toilet 6. I don't like people talking loud in the public
Private	1. I kind of hate the fact that people always want to know what you are doing, it's very intrusive 2. When people talk loud on their mobile on the bus, I cannot concentrate on my own stuff. 3. If someone phones me, even in am in my house, I just have to go to my room to talk, even it's nothing important.	1. My friend and I send text messages to each other, even when we are in front of each other, because we don't want other people to know what we are talking about.

Illusion/Disillusion Paradox

Illusion

Taiwanese participants seemed to take mobile phones for granted, they did not have specific expectation on them, as long as they worked literally everywhere. British participants showed three different expectations on mobile phones – expectation on other people, from other people, and on the phone itself.

Disillusion

Both of the participants from two countries experienced disillusion from mobile phones, mainly in two aspects: disillusion on the phone operation, and the seemingly ideal ''connecting'' people. Taiwanese participants had a unique expectation on others that they should equip/use the same functions/applications (Apps) in their mobile phones.

The statements are grouped as below:

	British	Taiwanese
Illusion	**Expectation on other people** 1. It's a default expectation – if it's a mobile phone, people should have it by their side, and they are ganna answer it. **Expectation from other people** 2. I think now people expect you to have emails and Internet on the phone, but I don't use them much. **Expectation on the phone itself** 3. I expect to be able to use it (mobile phone), just like I need clean water and fresh air. 4. Mobile phones should work as they say on the box 5. I don't have high expectation on phones, as long as it works. 6. I expect there are better apps (applications) for some sites (e.g. Facebook) to be used from my phone 7. One of the things you would expect a phone to do, is to be safe. You don't expect people to hack in to check your text messages or emails. (need to be safe?)	**Expectation on the phone itself** 1. They should work in every place.

	British	Taiwanese
Disillusion	**Disillusion on phone operations** 1. I feel kind of panic when the battery is running low. 2. I accidently pushed the silence button, so at the end of the day, I found that I haven't been answering my calls, I have kind of panic attack. 3. My 3G phone cannot get good signals, I wish I could have my 2G phone back. I don't need Internet or emails, I just want to make phone calls. 4. When people didn't pick up my calls, I started wondering – are they ok? Can they hear it? Are they ignoring me? All sorts of possible ideas would come to my mind. 5. Where I live has very bad signal, I always have to walk around the house and try to find where I could get good signals 6. The Facebook application on my phone is really crap, it annoys me. **Disillusion on connecting people** 1. Before having mobile phones, friendship seemed to be firmer. People made time to chat with you when you popped in. Now you are expected to phone in to ask if they are around, and it's always easier to say NO on the phone than face to face.	**Disillusion on phone operations** 1. Sometimes I am disappointed by the service provider when the reception is bad. 2. I am annoyed when I couldn't get any reception at a place that was supposed to have good reception. 3. I am disappointed with the handsets – basically I am disappointed with the manufacturer, the brand. **Disillusion on other people's usage** 1. I like to try video calls, but if other people don't use it, I cannot use it. **Disillusion on connecting people** 1. I don't like to talk to friends on the phone. Though I can talk to them all the time, I still think there is a distance there, between us.

Avoidance/Confrontation Coping Strategy

British participants did not mention much about avoiding but more on confronting with the paradoxes they perceive; Taiwanese participants showed that they used avoidance strategies as much as confrontation strategies.

The statements are grouped as below:

	British	Taiwanese
Avoidance	1. There are so many people in the business that I don't like to talk to, so when they call, I just hit the button 'silence'. If they want to leave a message, they could, but I wouldn't phone them back. 2. I don't call back to people who want to sell me something at my own expense.	1. I put my mobile phone in my bag so I wouldn't hear it ringing. Everytime when it rings, I feel nervous. 2. I read e-book from my phone and the characters are too small to read for long time, I then decide to buy the (real) book to read. 3. I feel restrained by being reached all the time. I choose to switch it to vibration sometimes, so that I wouldn't hear it. 4. If anyone got my phones, they might use the data in it. So I don't take photos of people now, I only take photos of scenery, food and things 5. You can always switch off your phone if you don't want to be reached. 6. I don't answer missed calls. If it's urgent, they will call back. 7. I use emails from my phone, but I only forward or answer yes or no questions. If I need to write a long email, I will wait until I can sit in front of a PC to write it, because It's difficult to write long emails from your mobile phones, and you are easy to make mistakes because the screen and the keypads are small.

Confrontation	1. I have bought an extra charger and am always bring it with me, so that I could charge on the coach, in the airport, because I use my mobile phone a lot for travel purposes. 2. It just runs out of battery too often, so I have to buy another one. One is with me all the time, the other one is at home. 3. You can always switch off your phone, the little button is there. **4.** In case the battery runs low during the day, I always make sure it's charged all the time. 5. When my boyfriend asked what I was doing, I told him that we were going to meet up in the evening, what were we going to talk about if we talk about this during the day? 6. When I try to have conversation with people who pick up the phone in the middle of our conversation, I would tell them off.	1. I normally let my friends know about my routine and the way I use mobile phones, so if they couldn't reach me, they wouldn't be worried that I would be in danger. 2. I used to able to remember every friend's phone number, but now I don't even remember my own number, that frustrates me a lot. I want to start remembering people's phone numbers by heart! 3. If I forgot to bring my mobile phone with me, I couldn't reach anyone because I couldn't remember anyone's number. Now I know I just need to remember one friend's number by heart, so if I forgot to bring it again, I could call the friend and ask him/her to tell me the number of the person whom I want to talk to. 4. I lost my mobile phone before, that was a disaster, I didn't know how to get those (phone) numbers back. Now I keep a hard copy phone book, and update my friends' numbers regularly. Though it's not really up-to-date, it's better than nothing at all. 5. Bad reception happens, and I am fine with it. 6. I feel ok if people complain about me being irresponsive. 7. I normally expect immediate responses for my text messages or missed calls. But I will still see what situation I am in or the other party is in. 8. It's ok to over-heard people's conversation in the public toilet. It's only a short time (I will be there, or she will be there). 9. I only use certain functions when I need them. I wouldn't let those unnecessary functions trouble me.

Appendix VII The Questionnaire

The Mobile Phone Experience Survey – British Participants

A study of consumer experience in using mobile technology from British and Taiwanese users

Part I. Your Handling of the Mobile Phone Technology

1. How long have you been using a mobile phone?

- ☐ Less than 1 year
- ☐ More than1 year but less than 3 years
- ☐ More than 3 year but less than 6 years
- ☐ More than 6 year but less than 10 years
- ☐ More than 10 years

2. Please circle the number to indicate your behaviour in using mobile phones. (1= Strongly Disagree, 7=Strongly Agree)

1)	I only use basic functions of the mobile phones such as making calls.	1-2-3-4-5-6-7
2)	I ignore learning the additional functions of the mobile phones.	1-2-3-4-5-6-7
3)	I do not write long messages from my mobile phone(s).	1-2-3-4-5-6-7
4)	I do not fix my mobile phone(s) if some functions are out of order.	1-2-3-4-5-6-7
5)	I switch my mobile phone off when I don't want to be reached.	1-2-3-4-5-6-7
6)	I have my own rules for when I should not use mobile phones.	1-2-3-4-5-6-7
7)	I am fine with bad reception.	1-2-3-4-5-6-7
8)	I am fine with not reaching people when I want to.	1-2-3-4-5-6-7
9)	My mobile phone is an essential part of my life.	1-2-3-4-5-6-7
10)	My mobile phone reflects my personality.	1-2-3-4-5-6-7
11)	I am a master of mobile phone functions.	1-2-3-4-5-6-7
12)	I always know how to use all the functions in my mobile phone(s).	1-2-3-4-5-6-7

Part II. Your Experience of Mobile Phones

3. Please circle the number to indicate your perception based on your experience in using mobile phones. (1=Strongly Disagree, 7= Strongly Agree)

13)	Mobile phones allow me to contact people much easier than before.	1- 2-3-4-5-6-7
14)	Mobile phones allow me to be reached by friends and family.	1-2-3-4-5-6-7
15)	Mobile phones allow me to communicate in the way I prefer (e.g. texting, emailing, calling etc.)	1-2-3-4-5-6-7
16)	Mobile phones make me feel bad if I don't respond quickly.	1-2-3-4-5-6-7
17)	Mobile phones constantly alert me to incoming messages.	1-2-3-4-5-6-7
18)	Mobile phones make me lose control of my own time.	1-2-3-4-5-6-7
19)	Mobile phones make it difficult for me to keep distance from unwanted callers.	1-2-3-4-5-6-7
20)	Mobile phones allow me to make calls anywhere I am.	1-2-3-4-5-6-7
21)	Mobile phones allow me to deal with time-critical matters.	1-2-3-4-5-6-7
22)	Mobile phones allow me to get in touch with people wherever they are.	1-2-3-4-5-6-7
23)	Mobile phones make me feel anxious when I don't have them to reply on.	1-2-3-4-5-6-7
24)	Mobile phones make me anxious if friends do not respond to me in time.	1-2-3-4-5-6-7
25)	Mobile phones frustrate me if I cannot reach someone instantly.	1-2-3-4-5-6-7
26)	Mobile phones make me feel tense if I cannot check on them constantly.	1-2-3-4-5-6-7
27)	Mobile phones make me feel safe.	1-2-3-4-5-6-7
28)	Mobile phones allow me to communicate with friends and/or work colleagues when I need them.	1-2-3-4-5-6-7
29)	Mobile phones allow me to be well-informed.	1-2-3-4-5-6-7
30)	Mobile phones allow me to reach out when I need help.	1-2-3-4-5-6-7
31)	Mobile phones require spending extra money on phone accessories.	1-2-3-4-5-6-7
32)	Mobile phones require insurance and data back-up.	1-2-3-4-5-6-7
33)	Mobile phones require purchasing devices /software to make them work better (e.g. additional chargers, headsets, applications etc.).	1-2-3-4-5-6-7
34)	Mobile phones allow me to answer all queries quickly.	1-2-3-4-5-6-7
35)	Mobile phones help me to complete my work/study-related tasks efficiently.	1-2-3-4-5-6-7
36)	Mobile phones allow me to use my time effectively.	1-2-3-4-5-6-7
37)	Mobile phones are difficult to master.	1-2-3-4-5-6-7
38)	Mobile phones get me into a habit of not remembering things.	1-2-3-4-5-6-7
39)	Mobile phones make me feel useless when I can't use them properly.	1-2-3-4-5-6-7
40)	Mobile phones cost me too much time in learning the functions.	1-2-3-4-5-6-7

41) Mobile phones help me organise my schedules.	1-2-3-4-5-6-7
42) Mobile phones help me improve my time management.	1-2-3-4-5-6-7
43) Mobile phones help me coordinate social gatherings.	1-2-3-4-5-6-7
44) Mobile phones allow me to refine changes on the scheduled plans.	1-2-3-4-5-6-7
45) Mobile phones make people change their scheduled plans constantly.	1-2-3-4-5-6-7
46) Mobile phones make people lose track on the updates of their plans.	1-2-3-4-5-6-7
47) Mobile phones make people plan things much less than before.	1-2-3-4-5-6-7
48) Mobile phones allow me to participate in important social events when I cannot be there physically.	1-2-3-4-5-6-7
49) Mobile phones enable me to be away from my family and friends, and still be able to be involved at the same time.	1-2-3-4-5-6-7
50) Mobile phones help me to work on equally important tasks at the same time.	1-2-3-4-5-6-7
51) Mobile phones annoy me when people around me use them instead of talking to me.	1-2-3-4-5-6-7
52) Mobile phones distract me from what I am doing.	1-2-3-4-5-6-7
53) Mobile phones reduce people's concentration.	1-2-3-4-5-6-7
54) Mobile phones annoy people around me when I use them in some gatherings.	1-2-3-4-5-6-7
55) Mobile phones enable me to have personal communication with others in public.	1-2-3-4-5-6-7
56) Mobile phones allow me to take important calls in public.	1-2-3-4-5-6-7
57) Mobile phones allow me to perform silent communications by texts when I am in public.	1-2-3-4-5-6-7
58) Mobile phones allow me to turn public places into my own world for my private communication.	1-2-3-4-5-6-7
59) Mobile phones reduce my concentration by overhearing other people's phone conversations in public.	1-2-3-4-5-6-7
60) Mobile phones force me to listen to other people's private conversations.	1-2-3-4-5-6-7
61) Mobile phones annoy me when they are used to have loud conversations in public places.	1-2-3-4-5-6-7
62) Mobile phones make people expect they can respond anytime.	1-2-3-4-5-6-7
63) Mobile phones make people expect they can reach others wherever they are.	1-2-3-4-5-6-7
64) Mobile phones make people expect they can be closer to their friends.	1-2-3-4-5-6-7
65) Mobile phones make people expect they can communicate with others anytime.	1-2-3-4-5-6-7
66) Mobile phones do not allow people to respond wherever they are.	1-2-3-4-5-6-7
67) Mobile phones are not useful to reach people at all times.	1-2-3-4-5-6-7
68) Mobile phones are not easy to use everywhere.	1-2-3-4-5-6-7

Part III. Your Satisfaction with the Use of Mobile Phones

4. According to the following statements, please circle the number to indicate your intention in doing so. (1= Very Unlikely, 7=Very Likely)

69) I will say positive things about mobile phones to others.	1-2-3-4-5-6-7
70) I will recommend applications and functions to others who seek advice.	1-2-3-4-5-6-7
71) I will encourage friends and relatives to make further use of mobile phones.	1-2-3-4-5-6-7
72) I will consider a more advanced mobile phone to replace my existing phone.	1-2-3-4-5-6-7

Part IV. Cultural Profile

5. The following statements pertain with the dominant values in culture. Please indicate your degree of agreement or disagreement with each of the statements: (1=Strongly Disagree, 5=Strongly Agree)

73) Individuals should sacrifice self-interest for the group (either at school or the work place).	1 - 2 - 3 - 4 - 5
74) Individuals should stick with the group even through difficulties.	1 - 2 - 3 - 4 - 5
75) Group welfare is more important than individual rewards	1 - 2 - 3 - 4 - 5
76) Group success is more important than individual success.	1 - 2 - 3 - 4 - 5
77) Individuals should only pursue their goals after considering the welfare of the group	1 - 2 - 3 - 4 - 5
78) Group loyalty should be encouraged even if individual goals suffer.	1 - 2 - 3 - 4 - 5
79) It is more important for men to have a professional career than it is for women.	1 - 2 - 3 - 4 - 5
80) Men usually solve problems with logical analysis; women usually solve problems with intuition;	1 - 2 - 3 - 4 - 5
81) Solving difficult problems usually requires an active, forcible approach, which is typical of men.	1 - 2 - 3 - 4 - 5
82) There are some jobs that a man can always do better than a woman.	1 - 2 - 3 - 4 - 5

6. In your private life, how important is each of the following to you? Please circle one answer in each line and use the same scale. (1= Not important, 5 = Very important)

83) Keeping time free for fun	1 - 2 - 3 - 4 - 5
84) Moderation: having few desires	1 - 2 - 3 - 4 - 5

7. Are you a happy person?
   - ☐ Always
   - ☐ Usually
   - ☐ Sometimes
   - ☐ Seldom
   - ☐ Never

8. Do other people or circumstances ever prevent you from doing what you really want to?
   - ☐ Yes, always
   - ☐ Yes, usually
   - ☐ Sometimes
   - ☐ No, seldom
   - ☐ No, never

Part V. About You

9. Approximately how many years have you lived in the UK? _____ years

10. Are you? □ Male □ Female

11. Your age is:

☐	16 ~ 20,	☐	41 ~ 45,
☐	21 ~ 25,	☐	46 ~ 50,
☐	26 ~ 30,	☐	51 ~ 55,
☐	31 ~ 35,	☐	56 ~ 60,
☐	36 ~ 40,	☐	Above 60.

12. Please print your occupation _____

13. The highest level of education attained

- ☐ High school
- ☐ College diploma
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctoral degree

Appendix VIII The Cover Letter for the Taiwan Questionnaire (Chinese Version) and the Chinese Questionnaire

行動電話使用觀感調查

台灣與英國行動科技用戶之使用經驗研究

您好：

我目前就讀於英國牛津布魯克斯大學(Oxford Brookes University)，在此竭誠地希望您能撥冗幫忙填寫這份問卷，以協助完成我的博士研究。

本研究著重於了解文化對人們在使用行動科技經驗上的影響，這份問卷則以行動電話用□的使用觀感來做資料的收集。

這是一份不記名的問卷，共有五大部分。約需費時 15 分鐘完成。本問卷所收集的資料將會被妥善地保存，且分析結果將不會被用於商業行為上。

本研究對象為台灣人和英國人，年齡介於 16 到 60 □之間，且為行動電話的用□。本中文問卷只針對台灣籍用□進行資料收集。此問卷並不需要您提供個人隱私資料，請安心填寫。

本問卷所有收集到的資料將會被保密處理(但仍受限於法律規定)，且填寫者身分將不會被追朔。資料將會根據牛津布魯克斯大學的學術規定嚴謹地保存，不論是線上問卷或是紙本問卷，所有資料將妥善保存五年。本研究通過牛津布魯克斯大學研究倫理委員會審核，如果您對於研究倫理需要進一步資訊，請與委員會連絡，聯絡方式：ethics@brookes.ac.uk

您可在夾頁的資料裡進一步了解此研究的□容與目的。

感謝您的幫忙，祝您有美好的一天。

李佩芳
行銷學博士生
英國牛津布魯克斯大學 商學院行銷學系

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第一部分： 您如何使用行動電話

1. 請問你使用行動電話多久了?

☐ 未滿一年

☐ 一年以上，未滿三年

☐ 三年以上，六年以下未滿六年

☐ 六年以上，十年以下未滿十年

☐ 十年以上

2. 根據以下的描述，請選出最能代表您使用行動電話的行為 (1 = 非常不同意，7 = 非常同意)

1)	我只使用行動電話基本的功能，例如打電話	**1 - 2 - 3 - 4 - 5 - 6 - 7**
2)	我對於學習使用行動電話的附加功能不感興趣	**1 - 2 - 3 - 4 - 5 - 6 - 7**
3)	我不用行動電話打較長的訊息/電郵	**1 - 2 - 3 - 4 - 5 - 6 - 7**
4)	如果行動電話某些功能故障，我不會特別去修理它	**1 - 2 - 3 - 4 - 5 - 6 - 7**
5)	當我不想被找到時， 我會把行動電話關機	**1 - 2 - 3 - 4 - 5 - 6 - 7**
6)	我有自己有原則在於什麼時候該用或不該用行動電話	**1 - 2 - 3 - 4 - 5 - 6 - 7**
7)	對於不好的收訊狀況，我覺得無所謂	**1 - 2 - 3 - 4 - 5 - 6 - 7**
8)	當我用行動電話找不到我想找的人時，我覺得無所謂	**1 - 2 - 3 - 4 - 5 - 6 - 7**
9)	我的行動電話是我生命中很重要的一部分	**1 - 2 - 3 - 4 - 5 - 6 - 7**
10)	我的行動電話代表我的個性	**1 - 2 - 3 - 4 - 5 - 6 - 7**
11)	我是精通行動電話功能的人	**1 - 2 - 3 - 4 - 5 - 6 - 7**
12)	我總是知道如何使用我行動電話上的所有功能	**1 - 2 - 3 - 4 - 5 - 6 - 7**

第二部分: 您使用行動電話經驗

3. 根據以下的描述，請選出最能表達您對使用行動電話之觀感 (1 = 非常不同意, 7=非常同意)

13)	行動電話讓我可以比以前還容易對外聯絡	**1 - 2 - 3 - 4 - 5 - 6 - 7**
14)	行動電話讓我可以讓朋友和家人找到	**1 - 2 - 3 - 4 - 5 - 6 - 7**
15)	行動電話讓我可以選擇我喜歡的方式跟他人溝通 (例如: 發簡訊，電郵，打電話等等)	**1 - 2 - 3 - 4 - 5 - 6 - 7**
16)	行動電話使我覺得自己很糟糕若我沒有在第一時間回覆他人	**1 - 2 - 3 - 4 - 5 - 6 - 7**
17)	行動電話讓我不時地留意新的訊息	**1 - 2 - 3 - 4 - 5 - 6 - 7**
18)	行動電話讓我無法掌控我自己的時間	**1 - 2 - 3 - 4 - 5 - 6 - 7**
19)	行動電話讓我很難拒□不想接的電話	**1 - 2 - 3 - 4 - 5 - 6 - 7**
20)	行動電話讓我可以在任何地方打電話	**1 - 2 - 3 - 4 - 5 - 6 - 7**
21)	行動電話讓我可以處理有時間性的事務	**1 - 2 - 3 - 4 - 5 - 6 - 7**
22)	行動電話讓我可以跟他人聯繫，不管他們在哪裡	**1 - 2 - 3 - 4 - 5 - 6 - 7**
23)	行動電話不在我身邊時，我會感到焦慮	**1 - 2 - 3 - 4 - 5 - 6 - 7**
24)	行動電話讓我在朋友沒有及時回覆我時感到焦慮	**1 - 2 - 3 - 4 - 5 - 6 - 7**

25) 行動電話讓我在無法馬上連繫到他人時感到沮喪	1 - 2 - 3 - 4 - 5 - 6 - 7
26) 行動電話讓我在無法隨時□看它時感到緊張	1 - 2 - 3 - 4 - 5 - 6 - 7
27) 行動電話讓我覺得有安全感	1 - 2 - 3 - 4 - 5 - 6 - 7
28) 行動電話讓我在需要朋友或/和同事時，可以跟他們連絡溝通	1 - 2 - 3 - 4 - 5 - 6 - 7
29) 行動電話讓我能被充分知會大小事	1 - 2 - 3 - 4 - 5 - 6 - 7
30) 行動電話讓我在需要幫忙時，可以向外求援	1 - 2 - 3 - 4 - 5 - 6 - 7
31) 行動電話讓我花更多的錢去買飾品裝飾它	1 - 2 - 3 - 4 - 5 - 6 - 7
32) 行動電話讓需要保險與資料備份	1 - 2 - 3 - 4 - 5 - 6 - 7
33) 行動電話讓我需要購買額外的配備/軟體來讓它發揮更好的效用 (例如:充電器，耳機/免持聽筒，應用軟體 Apps)	1 - 2 - 3 - 4 - 5 - 6 - 7
34) 行動電話讓我能快速地回覆他人	1 - 2 - 3 - 4 - 5 - 6 - 7
35) 行動電話讓我可以有效率地完成工作/學業相關的作業	1 - 2 - 3 - 4 - 5 - 6 - 7
36) 行動電話讓我有效率地運用時間	1 - 2 - 3 - 4 - 5 - 6 - 7
37) 行動電話不容易學習使用得當	1 - 2 - 3 - 4 - 5 - 6 - 7
38) 行動電話讓我養成不記事情的習慣	1 - 2 - 3 - 4 - 5 - 6 - 7
39) 行動電話讓我在不會善用它時，覺得自己很沒用	1 - 2 - 3 - 4 - 5 - 6 - 7
40) 行動電話讓我花太多時間去學習使用它	1 - 2 - 3 - 4 - 5 - 6 - 7
41) 行動電話幫我規劃行程表	1 - 2 - 3 - 4 - 5 - 6 - 7
42) 行動電話幫我改善我的時間管理	1 - 2 - 3 - 4 - 5 - 6 - 7
43) 行動電話幫助我聯絡協調我的社交聚會	1 - 2 - 3 - 4 - 5 - 6 - 7
44) 行動電話讓我可以調整原定的計畫	1 - 2 - 3 - 4 - 5 - 6 - 7
45) 行動電話讓人變得常常改變計畫	1 - 2 - 3 - 4 - 5 - 6 - 7
46) 行動電話讓人跟不上原定計劃的最新狀況	1 - 2 - 3 - 4 - 5 - 6 - 7
47) 行動電話讓人變得比以前少事先計畫事情	1 - 2 - 3 - 4 - 5 - 6 - 7
48) 行動電話讓我在無法親自到場時，還是可以參與重要的社交活動	1 - 2 - 3 - 4 - 5 - 6 - 7
49) 行動電話讓我不在家人和朋友身邊時，還是可以參與他們的活動	1 - 2 - 3 - 4 - 5 - 6 - 7
50) 行動電話幫助我可以同時進行同等重要的不同事情	1 - 2 - 3 - 4 - 5 - 6 - 7
51) 行動電話讓我對身邊的人因為使用它而不跟我交談感到厭煩	1 - 2 - 3 - 4 - 5 - 6 - 7
52) 行動電話讓我在做事時會分心	1 - 2 - 3 - 4 - 5 - 6 - 7
53) 行動電話減低人們的專注力	1 - 2 - 3 - 4 - 5 - 6 - 7
54) 行動電話讓我在聚會時使用它時，讓我我週遭的朋友感到厭煩	1 - 2 - 3 - 4 - 5 - 6 - 7
55) 行動電話讓我可以在公共場合與不在場的人進行私人溝通	1 - 2 - 3 - 4 - 5 - 6 - 7
56) 行動電話讓我可以在公共場合接聽重要電話	1 - 2 - 3 - 4 - 5 - 6 - 7
57) 行動電話讓我可以在公共場合使用文字作無聲的溝通	1 - 2 - 3 - 4 - 5 - 6 - 7
58) 行動電話讓我把公共場合轉變成為我的私人溝通世界	1 - 2 - 3 - 4 - 5 - 6 - 7
59) 行動電話讓我在公共場合時，因聽到別人的談話□容而減低我自己該做的事情的注意力	1 - 2 - 3 - 4 - 5 - 6 - 7
60) 行動電話的存在讓我被迫聽取他人的私人談話	1 - 2 - 3 - 4 - 5 - 6 - 7

61) 行動電話的存在，讓我在公共場合聽到他人大聲的電話交談時，感到厭煩	1 - 2 - 3 - 4 - 5 - 6 - 7
62) 行動電話讓人們期待他們可以隨時回覆他人	1 - 2 - 3 - 4 - 5 - 6 - 7
63) 行動電話讓人們期待他們到哪裡都可以連絡他人	1 - 2 - 3 - 4 - 5 - 6 - 7
64) 行動電話讓人們期待他們可以跟朋友更親近	1 - 2 - 3 - 4 - 5 - 6 - 7
65) 行動電話讓人們期待他們隨時都可以跟他人溝通	1 - 2 - 3 - 4 - 5 - 6 - 7
66) 行動電話並無法讓人們在任何地方都可以回覆他人	1 - 2 - 3 - 4 - 5 - 6 - 7
67) 行動電話無法在任何時間都可連絡到他人	1 - 2 - 3 - 4 - 5 - 6 - 7
68) 行動電話無法在所有的地方使用	1 - 2 - 3 - 4 - 5 - 6 - 7

第三部分: 您使用行動電話的滿意度

4. 根據以下的描述，請選出最能表達您意願的選項 (1 = 非常不可能, 7 = 非常有可能)

69) 我會告訴別人行動電話好的一面	1 - 2 - 3 - 4 - 5 - 6 - 7
70) 我會推薦應用程式(Apps)及功能給尋求建議的人	1 - 2 - 3 - 4 - 5 - 6 - 7
71) 我會鼓勵親戚朋友們進一步使用行動電話	1 - 2 - 3 - 4 - 5 - 6 - 7
72) 我會考慮較高階的行動電話來取代我目前所使用的	1 - 2 - 3 - 4 - 5 - 6 - 7

第四部分: 文化價□觀

5. 以下的陳述與文化的價□觀有關，請選出最能表達您想法的選項 (1 = 非常不同意, 7 = 非常同意)

73) 較高階職位者應該避免與較低階職位者有社交上的接觸	1 - 2 - 3 - 4 - 5
74) 較低階職位者應該不要反對較高階職位者所做的決定	1 - 2 - 3 - 4 - 5
75) 較高階職位者應該不要將重要任務委派給較低階職位者	1 - 2 - 3 - 4 - 5
76) 仔細地遵從指示和程序是很重要的	1 - 2 - 3 - 4 - 5
77) 規則和規章是重要的， 因為他們讓我知道我被預期做到的程度為何	1 - 2 - 3 - 4 - 5
78) 指示□明對於工作是很重要的	1 - 2 - 3 - 4 - 5
79) 個人應該為了團體犧牲自我的興趣(在學校或職場).	1 - 2 - 3 - 4 - 5
80) 團體的福利與幸福比個人的報酬更重要.	1 - 2 - 3 - 4 - 5
81) 團體的成功比個人的成功更重要.	1 - 2 - 3 - 4 - 5
82) 男人有專業職業比女人有專業職業來得重要	1 - 2 - 3 - 4 - 5
83) 男人通常用邏輯分析來解決問題，女人通常用直覺來解決問題.	1 - 2 - 3 - 4 - 5
84) 解決困難的問題通常需要積極，強硬的態度 – 這也是典型男人的特質.	1 - 2 - 3 - 4 - 5

6. 在生活中，以下每項對您來□有多重要？ 請選出最能表達您想法的選項
(1 = 非常不同意, 7 = 非常同意)

85) 盡量空出時間享受歡樂	1 - 2 - 3 - 4 - 5
86) 節制: 不要有太多慾望	1 - 2 - 3 - 4 - 5
87) 個人的穩健與穩定性	1 - 2 - 3 - 4 - 5
88) 長期的計畫	1 - 2 - 3 - 4 - 5
89) 為未來的成功而努力工作	1 - 2 - 3 - 4 - 5

7. 您是一個快樂的人嗎?

□ 總是
□ 通常是
□ 有時是
□ 很少是
□ 從來不是

8. 是否有其他的人或狀況阻止您做您真的想做的事?

□ 是的，總是有
□ 是的，通常有
□ 有時有
□ 不是，很少有
□ 不是，從來沒有

第五部分: 您的個人資料

9. 您大概在台灣住幾年了? _____ 年

10. 您的性別 □男 □ 女

11. 您的年紀

☐ 16 到 20 □
☐ 21 到 25 □
☐ 26 到 30 □
☐ 31 到 35 □
☐ 36 到 40 □
☐ 41 到 45 □
☐ 46 到 50 □
☐ 51 到 55 □
☐ 56 到 60 □
☐ 60 □以上

12. 您的職業是 _____

13. 請問您的最高學歷

☐ 國中畢
☐ 高中/高職畢
☐ 大學大專院校畢 (學士或副學士學位)
☐ 碩士畢
☐ 博士畢

感謝您撥冗寶貴的時間填寫此問卷，祝您事事順心

Appendix IX Factor Loadings of the CVSCALE of Prasongsukarn (2009), Reid (2011) and Yoo et al. (2011)

		Prasongsukarn (2009)		Yoo et al. (2011)		Reid (2011)	
P1	People in higher positions should make most decisions without consulting people in lower positions.	0.573	4	0.43	5	0.525	4
P2	People in higher positions should not ask the opinions of people in lower positions too frequently.	0.495	5	0.48	**3**	0.519	**5**
P3	People in higher positions should avoid social interaction with people in lower positions	0.727	**1**	**0.54**	**2**	**0.782**	**1**
P4	People in lower positions should not disagree with decisions by people in higher positions	0.685	**3**	**0.58**	**1**	**0.759**	**3**
P5	People in higher positions should not delegate important tasks to people in lower positions	0.721	**2**	**0.44**	4	0.778	2
U1	It is important to have instructions spelled out in detail so that I always know what I'm expected to do	0.683	5	0.46	5	0.708	5
U2	It is important to closely follow instructions and procedures	0.777	**2**	**0.68**	**1**	**0.766**	**2**
U3	Rules and regulations are important because they inform me of what is expected of me	0.766	**3**	**0.65**	**2**	**0.828**	**1**
U4	Standardised work procedures are helpful	0.788	**1**	**0.5**	4	0.733	4
U5	Instructions for operations are important	0.765	4	0.58	**3**	**0.765**	**3**
C1	Individuals should sacrifice self-interest for the group (either at school or the work place)	0.691	5	0.53	**3**	**0.645**	4
C2	Individuals should stick with the group even through difficulties	0.694	4	0.49	4	0.589	6
C3	Group welfare is more important than individual rewards	0.746	**2**	**0.81**	**1**	**0.793**	**2**
C4	Group success is more important than individual success	0.778	**1**	**0.75**	**2**	**0.825**	**1**
C5	Individuals should only pursue their goals after considering the welfare of the group	0.712	**3**	**0.45**	5	0.673	3
C6	Group loyalty should be encouraged even if individual goals suffer	0.667	6	0.44	6	0.644	5
M1	It is more important for men to have a professional career than it is for women	0.704	**3**	**0.58**	**3**	**0.562**	**3**
M2	Men usually solve problems with logical analysis; women usually solve problems with intuition	0.760	**1**	**0.62**	**2**	**0.705**	**2**
M3	Solving difficult problems usually requires an active, forcible approach, which is typical of men	0.753	**2**	**0.71**	**1**	**0.706**	**1**
M4	There are some jobs that a man can always do better than a woman	0.488	4	0.43	4	N/A	N/A
D1	Careful management of money (Thrift)	0.799	4	0.42	5	0.684	4
D2	Going on resolutely in spite of opposition (Persistence)	0.830	**2**	**0.35**	6	0.595	6
D3	Personal steadiness and stability	0.831	**1**	**0.53**	4	0.785	2
D4	Long-term planning	0.821	**3**	**0.57**	**2**	**0.795**	**1**
D5	Giving up today's fun for success in the future	0.652	5	0.54	**3**	**0.648**	**5**
D6	Working hard for success in the future	0.601	6	0.73	**1**	**0.736**	**3**

Appendix X SEM Results for the Three Samples

Table A-1 SEM Results for the Three Samples: Standardised Path Coefficient, *t*-Values, Composite Reliabilities and AVEs.

		Whole Sample			UK			Taiwan		
	Items	Standardised Path Coefficients (Factor Loadings)	Composite Reliability	AVE	Standardised Path Coefficients (Factor Loadings)	Composite Reliability	AVE	Standardised Path Coefficients (Factor Loadings)	Composite Reliability	AVE
Individualism/Collectivism	IDV2	0.72 (Fixed)	0.63	0.38	0.80 (Fixed)	0.72	0.47	0.65 (Fixed)	0.62	0.37
	IDV3	0.68 (8.27)			0.64 (6.48)			0.72 (6.95)		
	IDV1	0.40 (6.81)			0.59 (6.27)			0.40 (5.35)		
Uncertainty Avoidance	UAI1	0.75 (Fixed)	0.74	0.49	0.77 (Fixed)	0.74	0.49	0.72 (Fixed)	0.72	0.46
	UAI2	0.69 (12.11)			0.68 (7.27)			0.67 (8.80)		
	UAI3	0.66 (11.79)			0.65 (7.13)			0.64 (8.57)		
Empowerment	PX1	0.64 (Fixed)	0.83	0.49	0.60 (Fixed)	0.82	0.47	0.67 (Fixed)	0.85	0.52
	PX2	0.74 (13.23)			0.69 (7.47)			0.79 (11.26)		
	PX10	0.69 (12.59)			0.78 (8.02)			0.63 (9.45)		
	PX16	0.78 (13.67)			0.77 (7.92)			0.79 (11.28)		
	PX18	0.65 (12.03)			0.58 (6.60)			0.74 (10.72)		
Competence	PX23	0.68 (Fixed)	0.75	0.51	0.67 (Fixed)	0.78	0.54	0.67 (Fixed)	0.74	0.49
	PX24	0.78 (12.17)			0.80 (8.27)			0.77 (9.06)		
	PX30	0.67 (11.74)			0.73 (8.17)			0.64 (8.51)		
Dependence	PX12	0.75 (Fixed)	0.73	0.48	0.64 (Fixed)	0.70	0.44	0.83 (Fixed)	0.75	0.51
	PX13	0.70 (10.59)			0.75 (5.90)			0.68 (8.48)		
	PX14	0.61 (10.30)			0.59 (6.00)			0.61 (8.15)		
Expectation	PX50	0.72 (Fixed)	0.76	0.52	0.68 (Fixed)	0.74	0.49	0.75 (Fixed)	0.78	0.54
	PX51	0.70 (11.88)			0.65 (6.98)			0.73 (9.97)		
	PX53	0.74 (11.95)			0.77 (6.94)			0.72 (9.94)		
Coping Strategy	CO1	0.65 (Fixed)	0.80	0.50	0.73 (Fixed)	0.83	0.54	0.62 (Fixed)	0.78	0.47
	CO2	0.75 (13.40)			0.79 (10.27)			0.70 (9.32)		
	CO11	0.75 (13.47)			0.75 (9.85)			0.74 (9.64)		
	CO12	0.68 (12.50)			0.68 (8.98)			0.67 (8.97)		
Consumer Loyalty	BI1	0.78 (Fixed)	0.86	0.61	0.80 (Fixed)	0.86	0.61	0.75 (Fixed)	0.88	0.64
	BI2	0.83 (19.22)			0.87 (13.34)			0.81 (13.89)		
	BI3	0.83 (19.36)			0.78 (11.82)			0.88 15.16)		

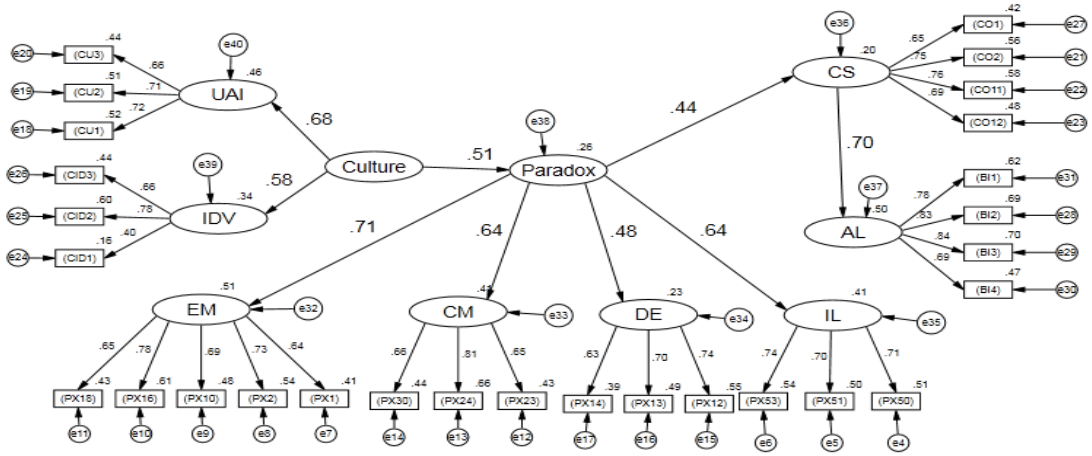
Appendix XI The Results of Second-Order Analysis

Results from the Whole Sample

Table A-2 Full and Partial Mediation Second-Order Models' Model Fit Indices

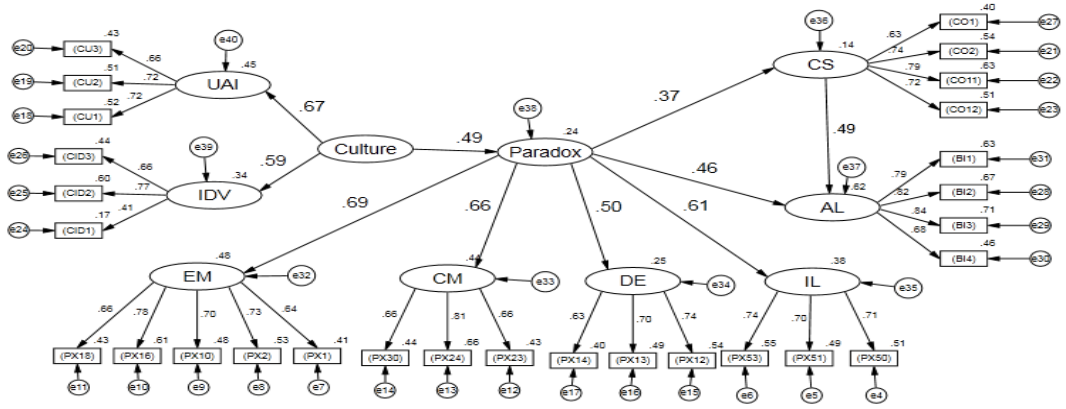
	Chi-Square	*df*	RMSEA	GF	CFI
Full Mediation	793.292	342	0.051	0.895	0.910
Partial Mediation	716.939	341	0.047	0.903	0.925

Figure A-1 Second-Order Full Mediation SEM (Whole Sample)



2nd Order Full Mediation Model (Whole Sample)
N=510

Figure A-2 Second-Order Partial Mediation SEM (Whole Sample)



2nd Order Partial Mediation Model (Whole Sample)
N=510

Table A-3 Summary of the Results of the Second-Order Full and Partial Mediation (Whole Sample, n=510)

Hypothesis	Hypothesised Relationship	Full Mediation		Partial Mediation	
		Standardised path coefficient	*t*-value	Standardised path coefficient	*t*-value
H1	CD→Paradox	0.513	4.85***	0.494	4.80***
H2	Paradox→Coping Strategy	0.443	6.02***	0.369	5.27***
H4	Coping Strategy→Consumer Loyalty	0.704	11.28***	0.494	8.83***
H3	Paradox→Consumer Loyalty			0.458	6.91***
Model Fit Statistics					
χ^2		793.292		716.939	
df		342		341	
RMSEA		0.051		0.047	
GFI		0.895		0.903	
CFI		0.910		0.925	
Variance explained (R^2)					
Paradox		0.26		0.24	
Coping Strategy		0.20		0.14	
Consumer Loyalty		0.50		0.62	

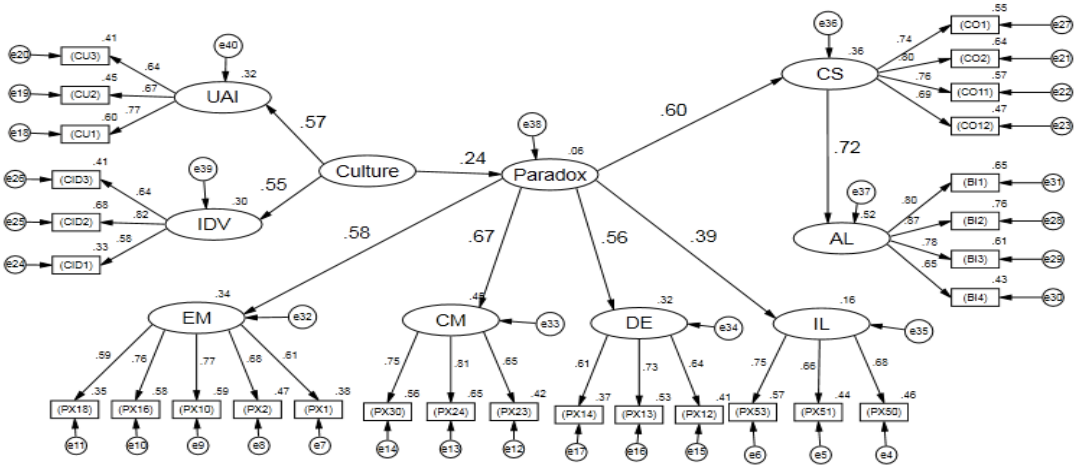
*p<0.05; **p<0.01; ***p<0.001;

Results from the UK sample

Table A-4 Full and Partial Mediation Second-Order Models' Model Fit Indices (UK Sample)

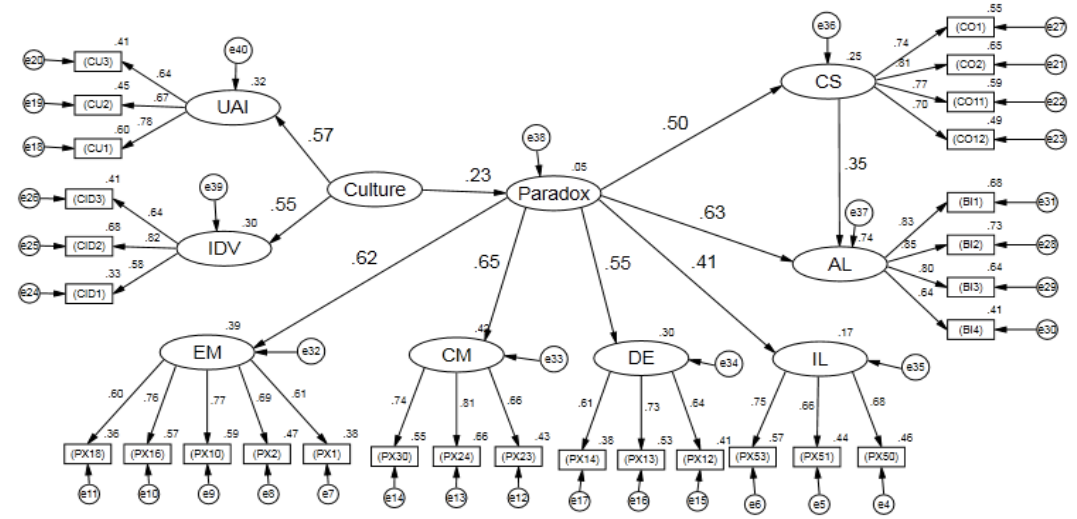
	Chi-Square	*df*	RMSEA	GFI	CFI
Full Mediation	527.321	342	0.051	0.850	0.910
Partial Mediation	482.931	341	0.045	0.861	0.931

Figure A-3 Second-Order Full Mediation (UK Sample)



2nd Order Full Mediation Model (UK Sample)
N=209

Figure A-4 Second-Order Partial Mediation Model (UK Sample)



2nd Order Partial Mediation Model (UK Sample)
N=209

Table A-45 Summary of the Results of the Second-Order Full and Partial Mediation (UK Sample, n=209)

Hypothesis	Hypothesised Relationship	Full Mediation		Partial Mediation	
		Standardised path coefficient	*t*-value	Standardised path coefficient	*t*-value
H1	CD→Paradox	0.236	1.54	0.234	1.62
H2	Paradox→Coping Strategy	0.599	4.12***	0.497	3.92***
H4	Coping Strategy→Consumer Loyalty	0.720	8.31***	0.355	3.98***
H3	Paradox→Consumer Loyalty			0.627	4.39***
Model Fit Statistics					
χ^2		527.321		482.931	
df		342		341	
RMSEA		0.051		0.045	
GFI		0.850		0.861	
CFI		0.910		0.931	
Variance explained (R^2)					
Paradox		0.06		0.06	
Coping Strategy		0.36		0.25	
Consumer Loyalty		0.52		0.74	

*p<0.05; **p<0.01; ***p<0.001;

Results from the Taiwan Sample

Table A-6 Full and Partial Mediation Second-Order Models' Model Fit Indices (Taiwan Sample)

	Chi-Square	*df*	RMSEA	GFI	CFI
Full Mediation	620.917	342	0.052	0.870	0.910
Partial Mediation	581.443	341	0.048	0.876	0.922

Figure A-5 Second-Order Full Mediation (Taiwan Sample)

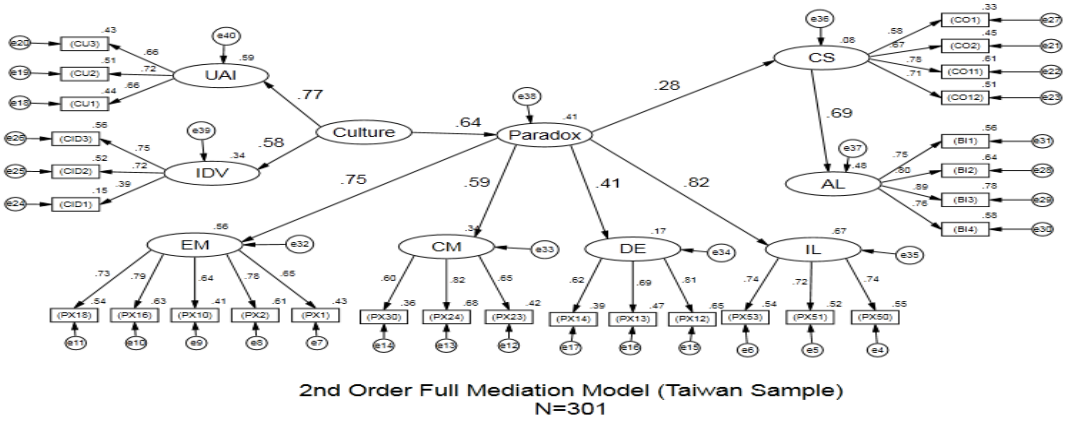


Figure A-6 Second-Order Partial Mediation Model (Taiwan Sample)

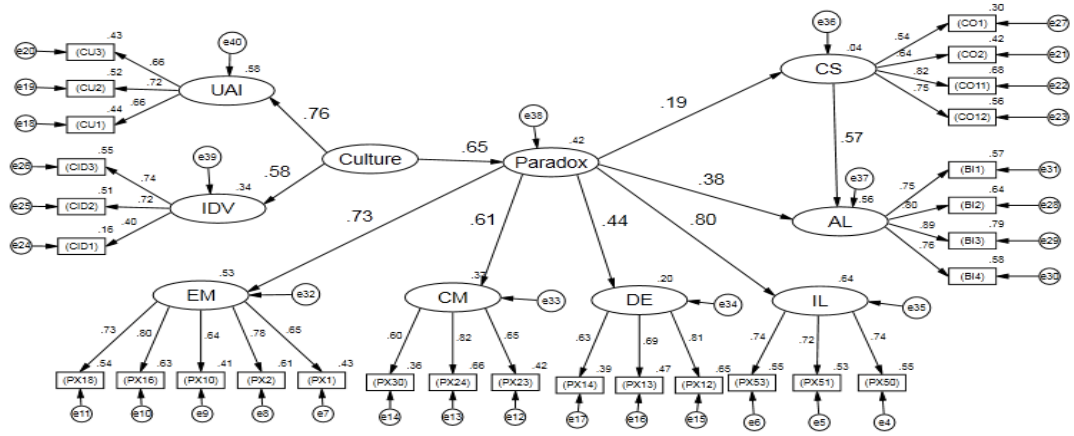


Table A-7 Summary of the Results of the Second-Order Full and Partial Mediation: Taiwan Sample, n=301

Hypothesis	Hypothesised Relationship	Full Mediation		Partial Mediation	
		Standardised path coefficient	*t*-value	Standardised path coefficient	*t*-value
H1	CD→Paradox	0.642	4.61***	0.645	4.63***
H2	Paradox→Coping Strategy	0.277	3.39***	0.193	2.45*
H4	Coping Strategy→Consumer Loyalty	0.692	7.69***	0.573	6.97***
H3	Paradox→Consumer Loyalty			0.383	5.29***
Model Fit Statistics					
χ^2		620.917		581.443	
df		342		341	
RMSEA		0.052		0.048	
GFI		0.870		0.876	
CFI		0.910		0.922	
Variance explained (R^2)					
Paradox		0.41		0.42	
Coping Strategy		0.08		0.04	
Consumer Loyalty		0.48		0.56	

*p<0.05; **p<0.01; ***p<0.001;

Appendix XII CVSCALE Validation in the UK and Taiwan

Table A-8 Factor Loadings, AVEs and CRs shown in the UK and Taiwan

	UK			Taiwan		
	UAI	IDV	MAS	UAI	IDV	LTO
UAI1	0.810			0.682		
UAI2	0.651			0.741		
UAI3	0.635			0.641		
IDV1		0.557			0.365	
IDV2		0.841			0.637	
IDV3		0.630			0.816	
MAS1			0.520			
MAS2			0.589			
MAS3			0.734			
LTO1						0.675
LTO2						0.672
LTO3						0.737
AVE	**0.49**	**0.47**	**0.39**	**0.48**	**0.40**	**0.48**
CR	**0.74**	**0.72**	**0.65**	**0.73**	**0.65**	**0.74**

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